

BRIDGING THE STANDARDIZATION GAP: REPORT ON THE ACTIVITIES OF THE ITU TELECOMMUNICATION STANDARDIZATION SECTOR (ITU-T)

1. INTRODUCTION

The need to Bridge the Standardization Gap (BSG) between developed and developing countries was given renewed focus in Resolution 123 adopted at the 2002 Marrakesh Plenipotentiary Conference, although concerns over this issue date from much earlier. The need for action was then emphasized in Resolution 44 (Bridging the standardization gap between developing and developed countries) approved at WTSA-04 (Florianópolis, 2004), which set out a detailed action plan for addressing the problem. Resolution 123 was revised in Antalya, and now incorporates, by reference, WTSA-04 Resolutions 44¹, 17 (“Standardization in relation to the interests of developing countries”) and 54 (“Creation of regional groups”), later revised at WTSA-08, as well as WTDC-06 Resolution 47 (“Enhancement of knowledge and effective application of ITU Recommendations in developing countries”).

At the TSAG meeting on 2-9 July 2008, the chairman of the Group on Bridging the Standardization Gap, Oleg Mironnikov (Russian Federation), reported on the work carried out to date, including a discussion of mechanisms identified for bridging the development gap, a compilation of relevant information, a list of meetings held in developing countries, a list of contact points, a list of topics for future study and a proposed future work programme

This Report provides an update on the work done on BSG, including an analytic model and indicators to plan and evaluate future actions.

2. DEFINING THE STANDARDIZATION GAP

The standardization development gap may be defined as disparities in the ability of representatives of developing countries, relative to developed ones, to access, implement, contribute to and influence international ICT standards, specifically ITU Recommendations².

The standardization development gap is itself both a cause and a manifestation of the wider digital divide between information haves and have nots. The digital divide measures disparities in access to ICTs, for instance among different regions (e.g., urban/rural) or between different groups within society (e.g., by age, sex, race etc). However, at the international level, the digital divide is expressed in terms of the gap in levels of ICT access among countries at different levels of economic and social development. The significance of the standardization development gap is that it is a contributing factor to the persistence of the wider digital divide in ICTs. Despite impressive gains in ICT access in many parts of the world in recent years, there remain differences in access to advanced technology (e.g. broadband) and disparities in the cost/ability to use that technology.

To take one example, as many as 33 African countries did not have broadband at the start of 2007 and the average price of service was around ten times higher than in high income economies³. The dominant form of broadband available in other African countries is based on the digital subscriber line (DSL) standards published by ITU (e.g., ITU-T Recommendations G.991, 992, 993). Thus, for broadband to be implemented more widely in Africa there needs to be a process whereby African engineers have access to the relevant standards and can implement them, and where they can participate in their development (“learning by doing”).

¹ See WTSA Resolution 44, which latest revision is available at <http://www.itu.int/publ/T-RES-T.44-2008/en>.

² This definition also appears in ITU Council document C07/EP/08; available at: <http://www.itu.int/md/S07-CL-INF-0008/en>.

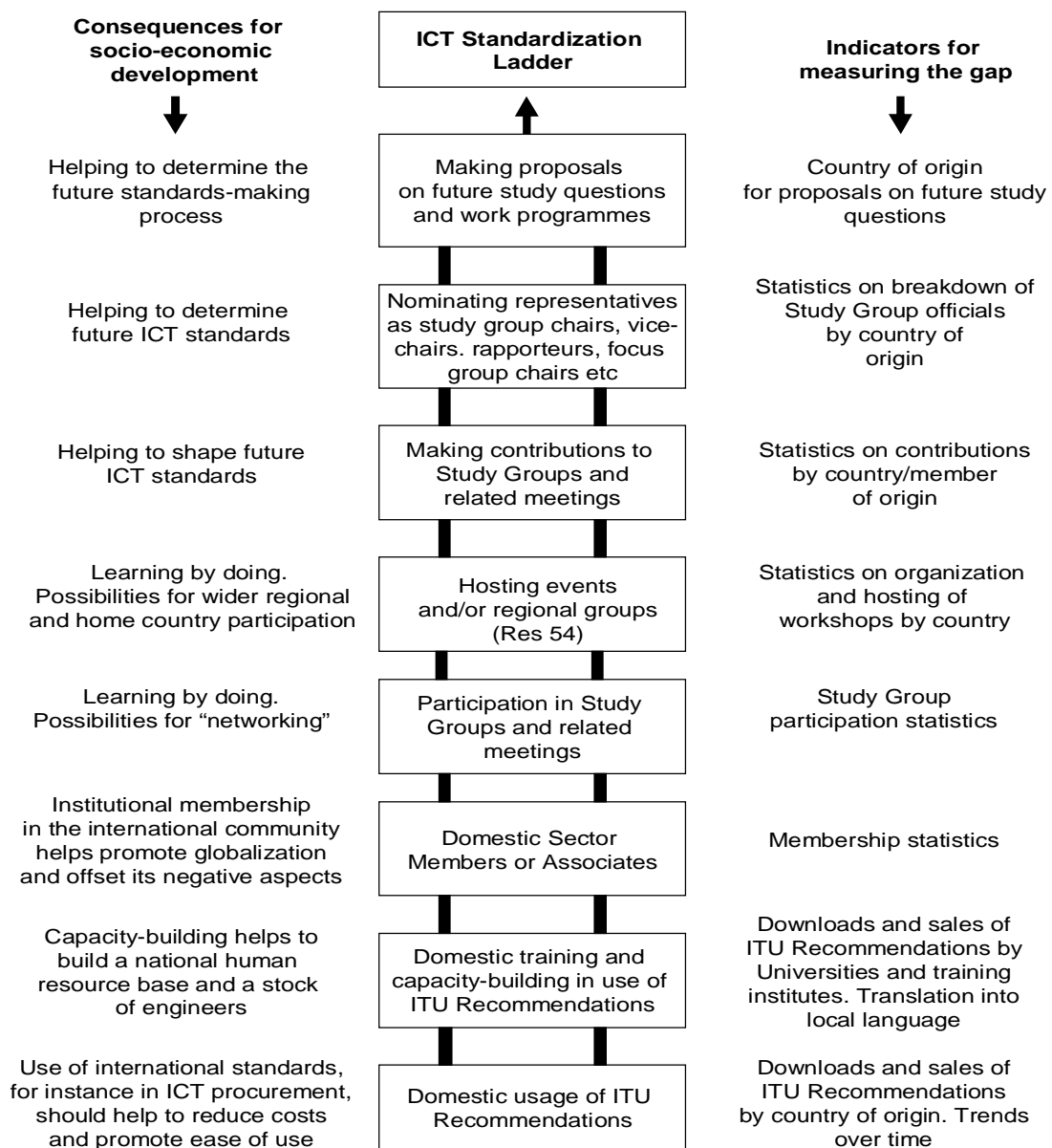
³ To be updated when available.

3. MEASURING THE STANDARDS GAP

To establish a framework for action and a baseline to measure the Standardization Gap and evaluate future progress, the concept of the “ladder of standardization development” was developed. The ladder has subsequently been presented and discussed at the regional events described below. The Ladder shows how countries, at different stages of development, can engage with ITU standards work and how different indicators can be used to measure the level of this engagement (see Figure 1). It also provides a set of steps that can be taken to reduce the Standardisation Gap.

Figure 1 “Ladder of Development” for ICT Standardization

Different levels of participation in the standardization process in ITU, their relationship with overall socio-economic development and possible ways of measuring the standardization gap.



The initial level at which most developing countries participate in the standardization process is as users of ICT standards. At higher levels on the ladder, national ICT companies from the developing countries may become Sector Members or Associates, and therefore be able to participate in Study Group meetings and workshops, download documents using TIES accounts, or host meetings. Moving further up the ladder, developing countries, especially those with a domestic manufacturing capability, may begin to influence the standardization process more directly, for instance by making contributions, or nominating officials for particular posts (e.g., chair, vice-chair or rapporteur of a study group, working group or focus group).

The status of each Step is analyzed in turn in the following section.

STEP 1: Use of ITU Recommendations

At the first level, developing countries rely on ITU as a source of information, and of training materials, especially for the download of Recommendations, meeting documents and other information from the website.

Since January 2007, ITU-T Recommendations have been available free-of-charge online and Council in 2007 decided to convert this trial into a permanent policy. This has been hugely beneficial not only in terms of the total number of Recommendations downloaded but also in the share of the downloads accounted for by developing countries. This is evident when comparing the number of ITU-T Recommendations accessed in 2006 from the electronic bookshop (when the service was paying) and in 2007 (when the service was free of charge), which shows an increase of over 80'000 per cent (Figure 2).

Further analysis of the trends in 2007 showed that some 14.8 per cent of downloads from the ITU-T website were from organizations or individuals located in developing countries, of which 0.3 per cent were in least developed countries (LDCs)⁴. China, with 3.8 per cent of total downloads, was the second most important destination to the USA overall, and China was followed by India, the Russian Federation, Brazil and Vietnam among developing and transition economies. In 2008 the total number of unique visitors on the ITU-T website increased by more than 15%.

Figure 2: ITU-T Recommendations downloaded, 2006 and 2007

	Sold via e-bookshop (2006)	Downloaded free-of-charge (2007)	% change, 2006-07
Developed countries	4'305 (89.4%)	3'313'709 (85.7%)	+76'873%
Developing countries	510 (10.6%)	554'976 (14.3%)	+108'718%
Total	4'815 (100.0%)	3'868'658 (100.0%)	+80'246%

Source: E-bookshop (2006) and ITU WebTrends and Documentum (2007).

Note: Free downloads have been corrected to exclude activity by search engines, estimated to amount to 1.44 million downloads in 2007. The total number of unique visitors downloading Recommendations in 2007 was 835'462 from 200 separate economies.

⁴ To be updated when available.

STEP 2: Capacity Building

The second rung of the ladder is national capacity building in the use of ITU Recommendations, which can help to build a national resource base of engineers able to implement these Recommendations. Key indicators for Step 2 include downloads and sales of ITU-T Recommendations by universities and training institutes and website traffic.

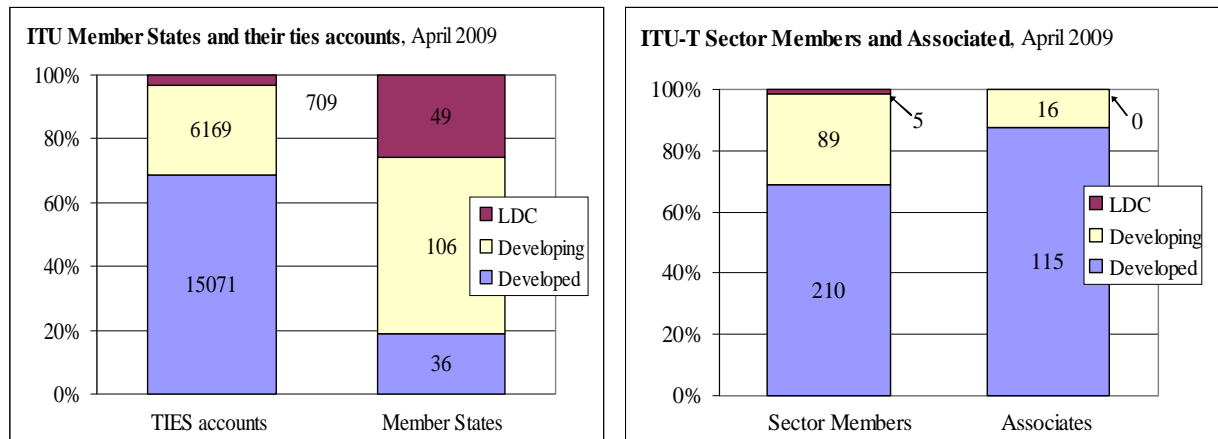
During the whole of 2006, only 10.3 per cent of e-bookshop sales were from developing countries, and only three copies (0.1 per cent) were sold in LDCs. Furthermore, whereas more than one million downloads were made from a total of 191 countries during the first half of 2007, only 4'815 sales to 78 countries were made using the e-bookshop service during the whole of 2006. This suggests that free on-line recommendations will enable ITU a much wider reach in the future.

The distribution of TIES User Accounts provides some details on usage of the ITU website by governments. Overall, developing countries and LDCs account for just over 68 per cent of TIES user accounts. However, the 49 LDC administrations that are Member States of the Union have an average of only 14 TIES User Accounts each, compared with 58 for developing countries and 18 for developed ones. This is likely to limit their usage of ITU documents with TIES restricted access (e.g., Study Group reports etc).

STEP 3: Membership

As many as 155 of the 191 ITU Member States (81 per cent) can be considered as “developing countries”. However, as of April 2009, only 94 out of 304 ITU-T Sector Members (30 per cent) were from developing countries. Thus, the distribution of ITU-T Sector Members is skewed towards developed countries. The distribution of ITU-T Associates is even more skewed. As of beginning 2009, there were just 16 ITU-T Associates from developing countries (13 per cent) out of a total 124.

Figure 2 : Distribution of ITU Member States and their TIES User Accounts (left chart) and of ITU-T Sector Members and Associates (right chart), April 2009



Note: “Developed” Member States are taken here to include the 30 OECD members plus Andorra, Lichtenstein, Monaco, San Marino, Singapore, Vatican City. LDC Member States include the 50 that are recognized by the UN General Assembly minus Timor-Leste, which was not an ITU Member in April 2009. All other economies are considered “developing”, including those with economies in transition, in line with PP-06 Resolution 143 (Antalya, 2006). The number of TIES Accounts is for administrations only and does not include Geneva-based Missions.

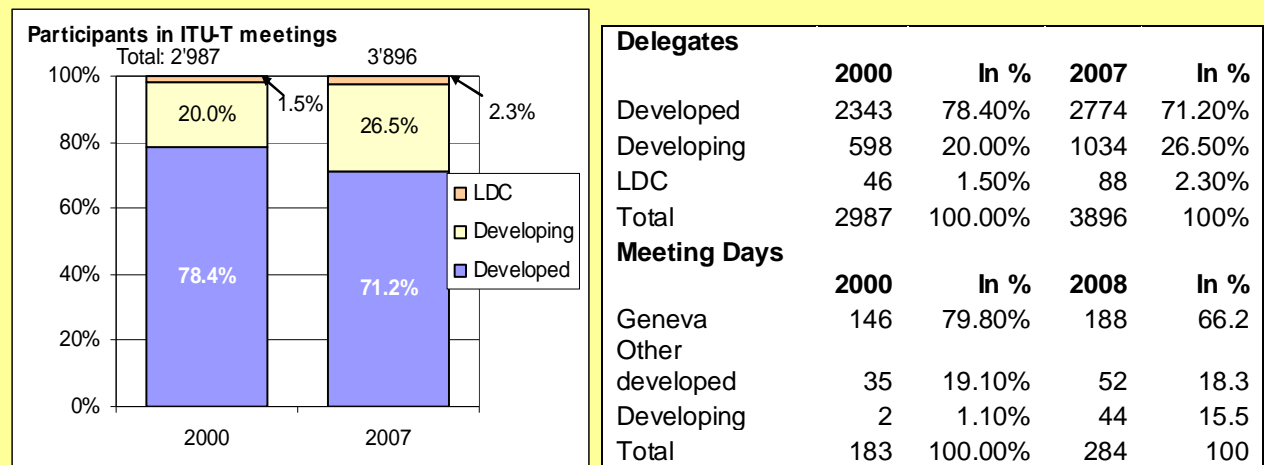
Source: ITU Global Directory Database.

China has the most Sector members among developing countries, with 11 ITU-T Sector Members (but no Associates) followed by India with 5 ITU-T Sector Members and 2 Associates. The distribution of ITU-T Associates is highly clustered, with more than half coming from just two Member States -- USA (49) and United Kingdom (11). Indeed, although there are a total of 74 ITU Member States that have ITU-T Sector Members, there are only 20 that have Associates. This suggests that awareness of the possibilities of Associate status is generally low, and especially low among developing countries and LDCs (from which there are no Associates). Although it might have been expected that the possibility of Associate status would be particularly appealing to small and medium-sized enterprises from developing countries, because of the lower entry costs, in reality these companies are not exploiting this opportunity, possibly due to lack of awareness.

STEP 4: Attending Study Group and related Meetings

The comparatively small number of ITU-T Sector Members and Associates from developing countries is reflected in their participation in ITU-T meetings, in terms of number of delegates. However, recent trends are encouraging. Analysis of the distribution by country of delegates in 2000 and in 2008 (see Figure 3) shows that, while the total number of delegates has increased by 30 per cent during this period, the number from developing countries has actually grown by 74 per cent, with a notable increase in the number coming from the Least Developed Countries (LDCs). One reason for this is the increase in the number of days of ITU-T meetings held in developing countries. In 2008, this amounted to a record 48 days (12 meetings including GSS and WTSA-08, five regional development forums and WTSA-08 preparatory meetings, plus regional groups and a SG/WP 6 meeting in China). By comparison, in 2000, only two ITU-T meeting days were held in a developing country (a regional tariff group meeting in Kenya).

Figure 3: Delegates to ITU-T meetings, 2000 and 2007 and 2008 ITU-T meeting days



Source: ITU-T.

STEP 5: Attracting ITU meetings and/or regional groups

On the fifth rung, countries may seek to hold ITU meetings or establish regional groups to foster participation in standards development. Hosting events stimulates national involvement and promotes training and raises awareness, while lowering the costs of participation for neighbouring countries. An increasing number of joint ITU-T/ITU-D Study Groups, Focus Groups and workshops are now held outside Geneva.

Meetings held in the regions on the topic of BSG have been very successful. Resolution 123 instructs the Secretary-General and the Directors of the Bureaux to work closely with each other on the follow-up and

implementation of this and related Resolutions. Consequently, ITU-T and ITU-D, with the assistance of the regional offices launched a number of common initiatives and hosted workshops with the aim of (a) bridging the digital divide; and (b) providing training and producing relevant training materials for capacity building.

The government of Rwanda generously hosted ITU's first ever global Forum on [Bridging the ICT standardization and development gap between developed and developing countries](#), in Kigali, Rwanda, 2-4 October, 2007. More than 160 participants from 38 countries took part in the meeting, with several countries being represented at government Minister, head of regulatory body, or company CEO/CTO level. The conclusions of the Forum, outlining the importance of addressing the standardization gap, were provided as input to the [Connect Africa](#) summit held in Kigali, 29-30 October.

In 2008, ITU organized Regional Development Forums on the theme of "Bridging the Standardization Gap between developed and developing countries" in conjunction with regional preparatory meetings for WTSA-08. The meetings were well-attended and served to identify regional perspectives and needs in standards development.

- **Brasilia, Brazil:** A regional development forum was held from 19-20 May, followed by a WTSA-08 regional preparatory meeting from 21-22 May with the participation of 195 delegates from 13 ITU Member States, and four regional organisations. Discussion focussed on a number of new initiatives, including a possible recommendation to Council/PP-10 on the creation of a new category of membership from academia, a possible reduced sector membership fee for small and medium-sized enterprises from developing countries and proposals to improve collaboration with, and participation of, research institutes;
- **Accra, Ghana:** A regional development forum was held from 26-28 May and a WTSA-08 regional preparatory meeting from 29-30 May, with the participation of 210 delegates from 39 ITU Member States. On the topic of bridging the standardization gap, a number of African Common Proposals were developed, including a request from Cote d'Ivoire for ITU help in the study of mitigation and technical measures to protect health resulting from human exposure to electro-magnetic radiation, in order to build technical regulatory frameworks to comply with ICNIRP⁵ (WHO) recommendations, and a request to African operators and other telecom service providers to take a more active role in ITU-T Study Group activities. It was also proposed that a special committee be established during WTSA-08 to handle issues relating to the standardization gap. The region further requested the establishment of regional groups for Study Groups 2, 4 and 5 in addition to those already existing for 3 and 12.
- **Tashkent, Uzbekistan:** A regional development forum for CEE, CIS and Baltic countries was held from 10-11 June, followed by a WTSA-08 regional preparatory meeting for the CIS countries from 12-13 June, with the participation of 115 delegates from 18 ITU Member States. A number of presentations looked at bridging the standardization gap in specific ICT applications, including telemedicine and education and a proposal from the Russian Federation showed how the increased production of handbooks, including at the regional level, could help. The meeting also looked at quality of service and interoperability issues and presented more information on the proposed ITU Mark for testing and certification.
- **Damascus, Syria:** A regional development forum was held from 20-22 July with the participation of 53 delegates from 13 Member States. The meeting endorsed a number of initiatives, including:
 - interoperability of equipment and services conforming to ITU Recommendations and the ITU Mark

⁵ International Commission on Non-Ionizing Radiation Protection.

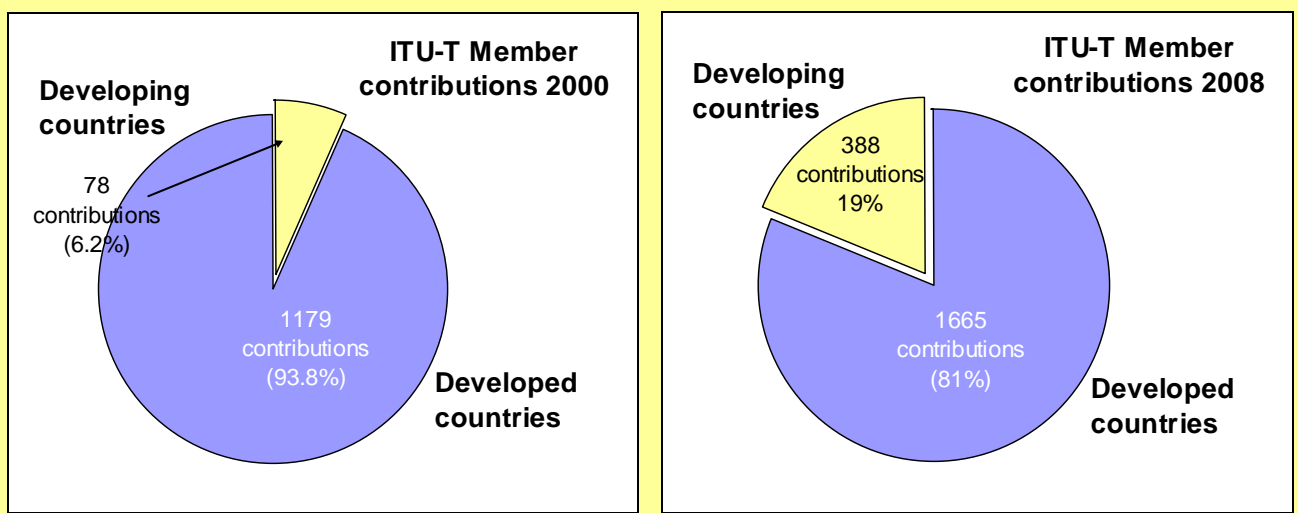
- reduction of the ITU-T membership fees to the same level as the ITU-D for the private sector in developing countries
 - proposed action of ITU-T on the major problem of the large amount of electronic waste which is negatively affecting the environment and public health
 - holding the ITU Development Forums in each Region during 2009 possibly back to back with the Regional Preparatory meetings for WTDC-10.
- **Hanoi, Vietnam:** A regional development forum was held from 15-17 September followed by a WTSA Preparatory meeting. The Forum was attended by more than 100 participants coming from 27 countries. It presented an overview of ITU standardization activities relevant to Asia-Pacific countries on such topics as emerging ICT regulatory and standardization issues, convergence, migration to NGN, emergency communications, misuse of numbering, Cybersecurity, climate change, network externalities, IPR policies and OLPC connectivity. The event concluded with a panel discussion which emphasized that participation is the most important key to reduce the standardization gap and digital divide.

The number of participants at the regional Forums held in 2008 is an encouraging sign. These meetings demonstrated the value of bringing standardization activities to the regions.

STEP 6: Making Written Contributions

The increase in the number of delegates from developing countries is also reflected in the striking increase in the number of **contributions** to standards work from those countries. Standards-making in ITU-T is a contribution-driven process and when developing country representatives submit contributions to ITU-T, it shows their growing level of commitment and influence. In 2000, developing countries made only 78 contributions to ITU-T, but by 2008 this had grown to 388, a five-fold increase, by which time this accounted for a fifth of the total (see Figure 4). Looking in more detail at the breakdown of contributions, a major reason for the increase is the greater involvement of China and its Sector Members. The total number of developing countries making contributions has increased from 15 in 2000 to 25 in 2008, including three LDCs, Rwanda, Senegal and Togo).

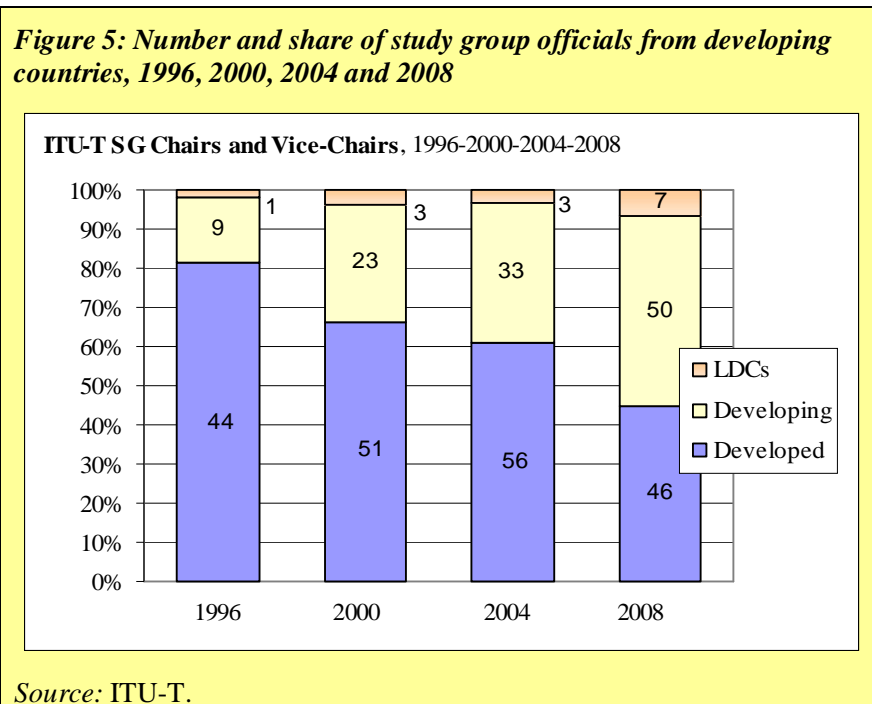
Figure 4: Number of contributions to ITU-T meetings, 2000 and 2008



Source: ITU-T.

STEP 7: Taking Leadership Positions

The next step involves leadership in the standards process through the nomination of study group officials from developing countries, such as chairs, vice-chairs and rapporteurs. As shown in Figure 5, the number of study group officials from developing countries has grown from just 10 in 1996-2000 to 57 at present, or 55 per cent of the total. WTSA-08 presented another opportunity for delegates from developing countries to take a leadership role, countries such as Indonesia, Cuba and Côte d'Ivoire.



STEP 8: Making Proposals for ITU-T work

A review of the contributions and proposals received for WTSA-08 showed that 4 developing countries and 1 least-developed country submitted written proposals for the work of the Assembly, in addition to contributions from all of the major regional groupings, which include developed and least-developed Member States.

The holding of the first Standards Assembly in a developing country should further promote the full and active participation of developing countries in the work of the Assembly and the ITU-T.

OTHER ACTIONS ON BRIDGING THE STANDARDIZATION GAP

In addition to better statistics for measuring the standardization gap, and the hosting of regional development forums to bring standards-making closer to the regions, a number of other steps have been taken or proposed for bridging the standardization gap.

A voluntary fund to help bridge the standardisation gap (WTSA-04 Resolution 44) was established in August 2007 and rise to more than CHF 200,000 in 2008. Contributors include Nokia Siemens Networks (EUR 30,000), Microsoft (USD 40,000), Cisco (USD 40,000) and the Korean Communications Commission (86,000

SFR). The Fund will be used, *inter alia*, for supporting more events taking place in developing countries. Planned ITU-T events include a training course on optical technology in Kigali, Rwanda, a workshop on NGN migration strategies in Sri Lanka, and the second Kaleidoscope event to be held in Argentina, September 2009. There are also opportunities to hold more regular study group and focus group meetings outside Geneva --such as the SG5 meetings that took place in February 2008 in Wuhan, China -- and block meetings, for instance of Global Standards Initiatives (GSIs). Proposals to host meetings are particularly welcome in 2009 due to a shortage of meeting rooms in Geneva.

In addition, to holding more events outside Geneva, greater efforts are being made to facilitate remote participation. More than 100 remote meetings were held in 2008, with over 700 participants, as part of the evaluation of remote collaboration tools – GoToMeeting and WebEx – initiated by TSAG at its December 2007 meeting.

One interesting proposal emerging from the Accra regional development forum is to offer paid internships for candidates from developing countries. Depending upon the availability of funds, it may be possible to revive the “Young Minds in Telecommunications” programme (see: <http://www.itu.int/osg/spu/youngminds/>), whereby paid internships are based on an essay-writing competition. Past Young Minds included students from China, Kazakhstan, Mozambique and the Russian Federation.

Finally, TSAG adopted a questionnaire for developing countries at its meeting in December 2007, to survey their opinions on ITU-T Recommendations and relevant WTSA Resolutions. This was further amended by the inter-sectoral advisory group and the final version was circulated to the membership in TSB Circular No. 213 in May 2008. The purpose of this questionnaire was to identify the views of representatives of developing countries with respect to ITU work and to identify possible improvements that would help in bridging the ICT standardization gap ([Resolution 123](#), Rev. Antalya 2006). As of April 2009, some 20 responses from 13 governments, 6 private sector organization and 1 NGO/ academic organization had been received. Of these, 5 responses were from Africa region, 2 from Asia Pacific region, 5 from Arab region, 4 from Europe region and 4 from Latin America region, suggesting that the responses were reasonably geographically balanced. The results will be updated as more responses are received.

A preliminary analysis of the results is available at www.itu.int/ITU-T/gap.