



1st International Workshop on Standards and Technologies in Multimedia Archives and Records (STAR)

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ITU-T standardization in the field of multimedia

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Contents

- About ITU, ITU-T and SG 16
- Work review
- Issues for archival
- Conclusions
- Supplemental slides



About ITU, ITU-T and SG 16



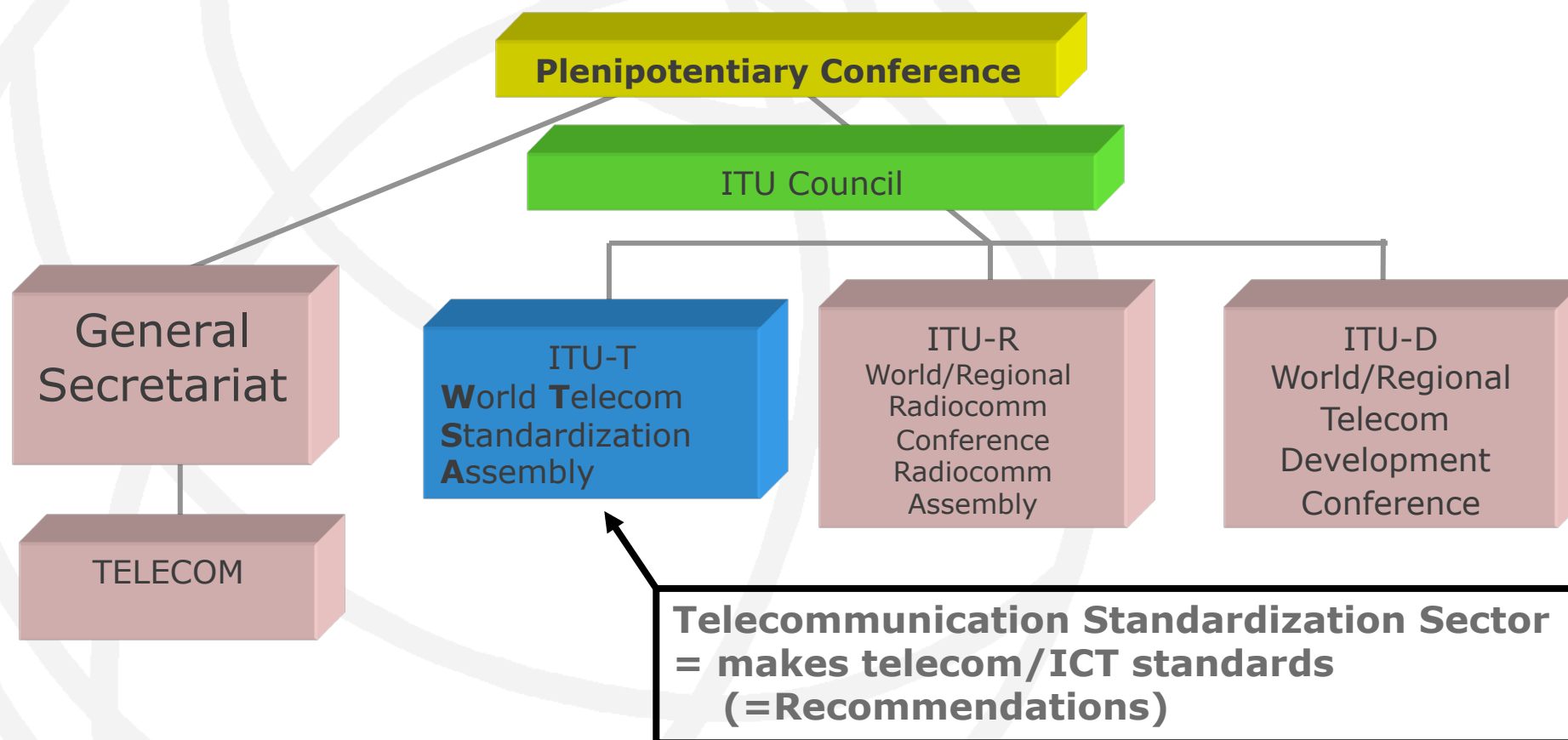
Introduction to ITU

- Specialized agency of the United Nations system for telecommunications
 - Founded in 1865, it is oldest UN specialized agency
 - Standards making: one of the ITU's first activities
- Named as one of the world's ten most enduring institutions by Booz Allen
- HQ Geneva, 11 regional offices, 760 staff / 80 nationalities
- Membership:
 - Member States: **191 governments**
 - Sector Members: **565 private sector**
 - Associates: **154 private sector**
 - can participate in one Study Group only
 - new category for Universities under consideration
- Today, 95% of the work in ITU-T is done by the private sector (Sector Members and Associates)



ITU Structure

Oldest UN specialized agency (founded in 1865)





Strategic Objectives / Standardization Sector

1. Develop and publish timely global standards
2. Identify relevant areas for future standardization projects
3. Provide the most attractive forum for standardization in the interest of the membership
4. Promote value of ITU-T to attract increased membership
5. Disseminate information and know-how
6. Cooperate and collaborate with other Sectors and other entities
7. Provide support and assistance to the membership, in particular developing countries

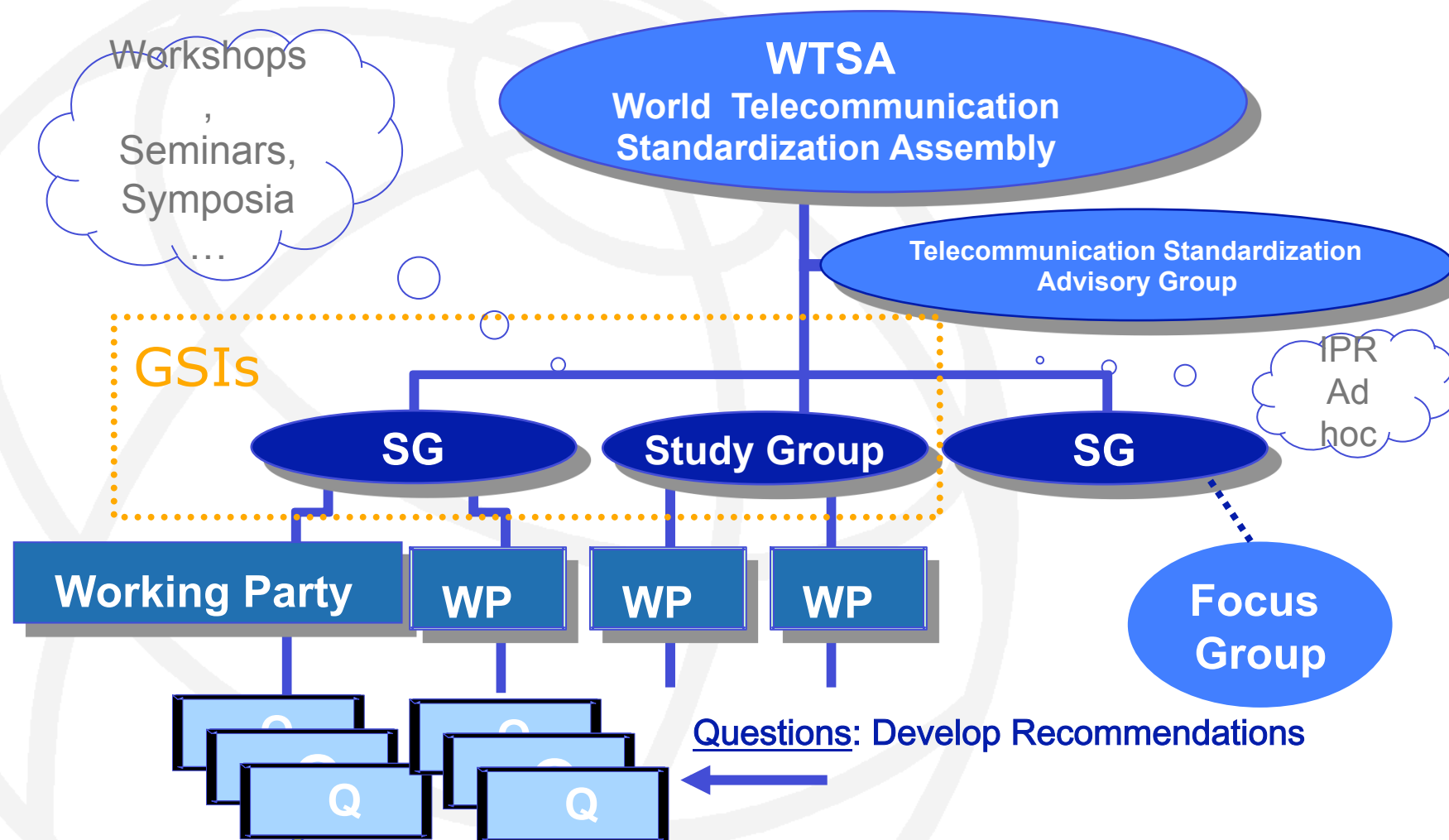


ITU-T in a Nutshell

- Work (mostly) done in Study Groups (10 of them)
 - + Telecommunication Standardization Advisory Group (TSAG)
- ITU-T Product: Recommendations (= “standards”)
 - Freely available to the public
- Unique partnership of private sector (Sector Members) & government (Member States)
- Brand name
- Truly global
- Consensus decisions
- Very flexible
- Fast & transparent procedures
 - Average approval time: 9.5 weeks
- Common Patent Policy ITU-T/ITU-R/ISO/IEC
- New project: Interoperability events / ITU-T Conformity database



ITU-T Structure



GSI = Global Standards Collaboration events



SG 16 responsibilities and mandates

- Responsible for studies relating to ubiquitous applications, multimedia capabilities for services and applications for existing and future networks, including NGN and beyond
- Lead Study Group on:
 - Multimedia coding, systems and applications
 - Ubiquitous applications ("e-everything", such as e-health)
 - Telecommunication/ICT accessibility for persons with disabilities



ITU-T Study Group 16 structure

SG 16

Multimedia coding, systems and applications

Chairman: Yushi Naito (Mitsubishi Electric, Japan)

WP 1/16

Network signal processing and voiceband terminals (4 Qs)

Chairman: Mr. Harald Kullmann (DeutscheTelekom, Germany)

WP 2/16

Applications and systems (12 Qs)

Co-Chairman: Mr. Seong-Ho Jeong (Hankuk Univ., Korea)

Co-Chairman: Mr. Noah Luo (Huawei, China)

Vice Chairman: Mr. Yoshinori Goto (NTT, Japan)

WP 3/16

Media coding (5 Qs)

Chairman: Ms. Claude Lamblin (France Telecom, France)

Q20

Multimedia coordination

Q26

Accessibility to Multimedia Systems and Services



Work review



Media coding

- **Speech, audio, video**
 - G.711, G.729, G.722, ..., G.719
 - Higher bandwidth extension for existing codecs;
Better performance in IP networks
- **Video:**
 - H.261, H.263, H.262 (=MPEG2-2), H.264 (=MPEG4-10 AVC)
 - New: ITU-T & JTC1 JCT-VC for the next generation of video coding
- **Still image: Joint with ISO/IEC JTC1 SC29 WG1 (JPEG)**
 - T.81 series (JPEG original), T.800 series (JPEG2000),
T.830 (JPEG-XR)
- **Character coding**
 - Original work – T.50 ~ T.53
 - Endorsed ISO/IEC 10646 Unicode (T.55)
- **Media coding summary database ([MCSD](#))**



Systems (1)

- Videoconferencing
 - H.320 series ([PSTN](#), [Mobile](#), [ISDN](#), [IP](#))
 - H.325/AMS [Project](#) for 3rd Generation Multimedia
- IPTV
 - H.700-series
- Home networking
 - H.620-series
- USN (Ubiquitous sensor networks)
 - Framework in [ITU-T F.744](#)
- Video surveillance
 - Framework in [ITU-T F.743](#)



Systems (2)

- Distance learning
 - Framework in [ITU-T F.743](#)
- E-health
 - Studies towards Generic architecture for e-health applications (and telemedicine, in particular)
- Accessibility to ICTs/telecoms
 - [Accessibility checklist](#) for standardizers
 - [ITU-T F.790](#) – Guidelines for older persons and persons with disabilities



Issues for archival



Change in focus

- Traditionally: conversational scenarios
 - voice calls, video conferencing, text calls
- Convergence of technologies requires covering non-conversational scenarios
 - Generalization: from *conversational* to *interactive*
 - Broadcasting (live & recorded)
 - Conventional and non-conventional (web)
 - “Offline” use of conversational material
- Integration of media delivery (=multimedia) presents challenges
 - real-time (simple one: lip synch)
 - archival



Concerns

- Proliferation of proprietary solutions
 - Totally proprietary / private; *or*
 - Mixed proprietary and standardized content compression and framing (e.g. system & file format)
- Widening of applications for long-term access
 - Offline access
 - Legal intercept
 - Access to recorded material
 - Accessibility: disabilities, special needs, etc
- Digital media is pervasive, used by the public at large
 - Complexity of long-term archival approaches challenge professionals
 - How to meet the archival needs of the “common man”



Conclusions



Conclusions

- Our digital lives – Multimedia is here
 - It goes beyond professional archival needs
- Foundational standards need to be complemented by system / delivery & archival standards
 - *Open* standards – ISO, IEC, ITU
 - Several already exist – understand suitability
 - Range of needs to be met
- Future standards: enlarge focus from typical [conversational & broadcast] applications to interactive applications covering users with disabilities and special needs

Thank you!



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Simão Ferraz de Campos Neto joined the secretariat of the ITU Standardization Sector in 2002, and is the Counsellor for ITU-T Study Group 16 (for standardization work on multimedia services, protocols, systems, terminals and media coding, including accessibility). He organized several workshops (e.g. Multimedia in NGN, Telecoms for Disaster Relief, RFID, Standardization in E-health; SIIT2005) and was the editor of the first version of the ITU-T Security Manual.

Prior to joining ITU in 2002, Mr Campos worked for 8 years as a scientist in COMSAT Laboratories performing standards representation and quality assessment for digital voice coding systems, and before that he was a researcher at Telebras's R&D Center (CPqD).

A Senior Member of the IEEE, Mr Campos authored several academic papers and position papers, served in the review committee of several IEEE-sponsored conferences, and organized the first ITU-T Kaleidoscope Conference.



Supplemental slides



Current Study Groups 1/4

- SG2 - Operational aspects of service provision and telecommunications management
 - Service definition, numbering and routing
 - Telecommunication for disaster relief/early warning
 - Telecommunication management
- SG3 - Tariff and accounting principles including related telecommunication economic and policy issues
- SG5 - Environment and climate change
 - Electromagnetic compatibility and electromagnetic effects
 - Harmful Effects of radiation
 - ICTs and climate change
 - Recycling and e-waste



Current Study Groups 2/4

- SG9 - Television and sound transmission and integrated broadband cable networks
 - integrated broadband cable and television networks
- SG11 - Signalling requirements, protocols and test specifications
 - Signalling and protocols
 - Intelligent networks
 - Test specifications
- SG12 - Performance, QoS and QoE
 - quality of service and quality of experience



Current Study Groups 3/4

- SG13 - Future networks including mobile and NGN
 - Future networks and NGN
 - Mobility management and fixed-mobile convergence
- SG15 - Optical transport networks and access network infrastructures
 - Access network transport
 - Optical technology
 - Optical transport networks



Current Study Groups 4/4

- SG16 - Multimedia coding, systems and applications
 - Multimedia coding, systems and applications
 - Ubiquitous applications ("e-everything", such as e-health)
 - Telecommunication/ICT accessibility for persons with disabilities
- SG17 - Security
 - Telecommunication security
 - Identity management (IdM)
 - Languages and description techniques

ITU-T puts the Super in Information *Super* Highway

- All main means of accessing the Internet have been via ITU standards from modems and ISDN to broadband cable and DSL technologies
- Most recently:
 - Optical access via Fiber To The Home (FTTH)



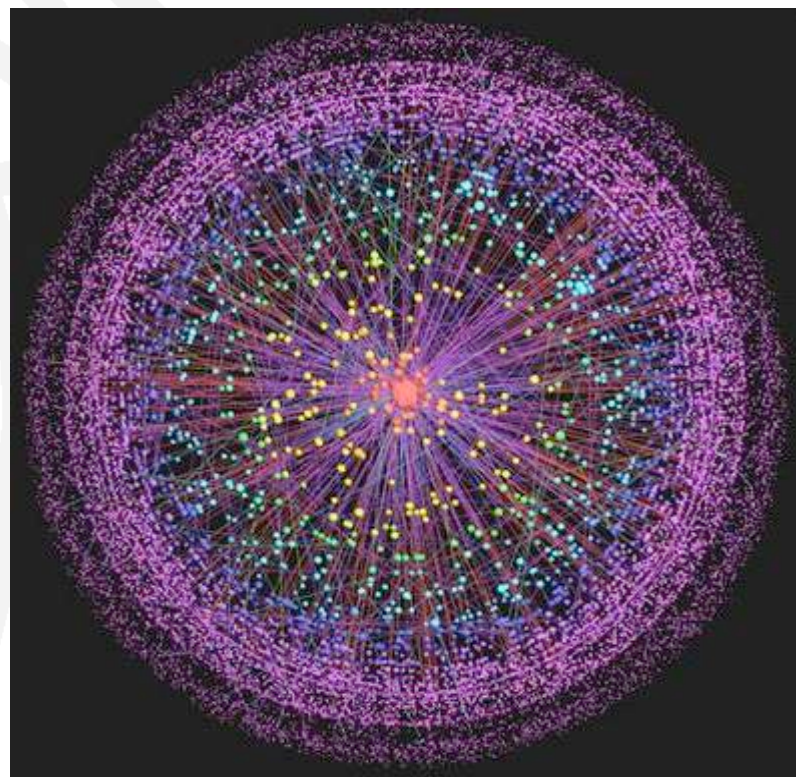
Next Generation Networks



- Massive challenge for the telecoms industry.
- One of the most complex transitions ever to have occurred telecoms
- ITU standards crucial
- New work:
 - Identify visions of future networks

Future networks

- Focus Group
- Collect and identify visions of future networks
- Third meeting
26-28 January
Geneva





The network knocks at your door

- Home Networking to achieve interoperability on a global scale
 - PC World (US) 13.12.08:
“The powerful world standards organization ...[ITU].. has reached agreement on G.hn a set of specifications that would encompass phone lines, power lines, and coaxial cable to provide HDTV room to room...”
- IPTV: high quality TV using IP infrastructure
 - Flexible, cost-effective in support of convergent services
 - NGN integration and legacy support
 - First set of standards agreed, implementations starting



ITU-T's quantum leaps in speech, audio and video quality

- Video codec H.264 in iPhone, Bluray, 3G, HDTV, 3D-TV, etc
- Primetime Emmy award
- Call for technical contributions for next gen
- Extension of work on speech coding:
 - Wider bandwidths, richer user experience

Intelligent Transport Systems



- New work:
 - Wideband communication in cars
 - Vehicle gateway protocol

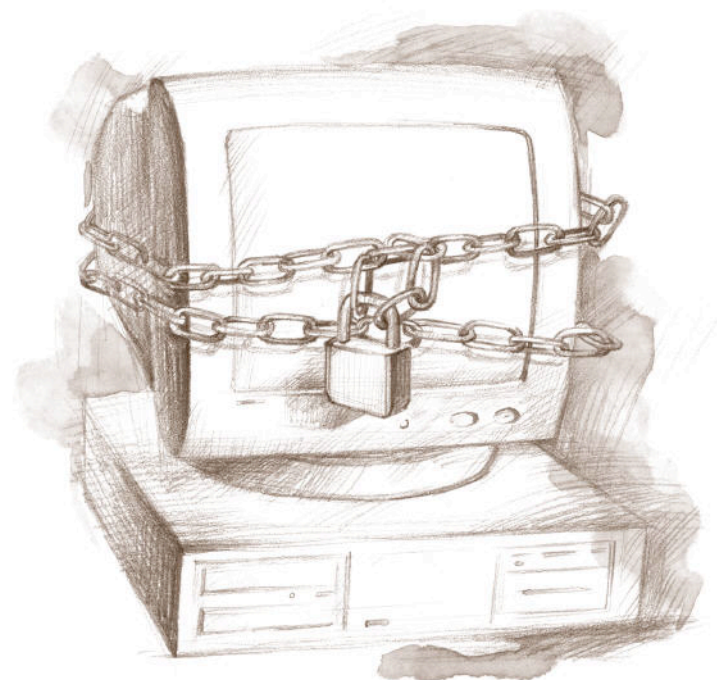
- ITU, ISO and IEC and Geneva Motor Show

➤ Annual Event



Safety in the cyber world

- Identity management
- Security standards for:
 - NGN
 - IPTV
 - Home networks,
 - Ubiquitous sensor networks
 - Mobiles
- Traceback
- Countering spam





ITU
and climate
change

Committed to Connecting the World



ICTs and Climate Change



UN Secretary-General,
Ban Ki-moon: "ITU is one of
the very important
stakeholders in the area of
climate change."

- Methodology to describe and estimate present and future user [energy] consumption of ICTs over their entire life-cycle
- Smarter standards for greener systems
- Participation in COP15



Participants in
Focus Group ICT
and Climate
Change

Universal charger

- ITU standardized
- Delivers 50% reduction in standby energy consumption, eliminates 51,000 tonnes of redundant chargers, and cuts GHG emissions by 13.6 million tonnes CO2 annually



Emergency Communications

- Common Alerting Protocol (CAP)
 - A consistent method of delivery for warning messages
- Call priority schemes
 - Giving priority in disaster zones to emergency calls
- In Case of Emergency numbers



ITU has deployed satellite terminals to help restore communications in the aftermath of disasters around the world



ITU and IPv6

- Massive deployment of Internet-related resources=depletion of IPv4 addresses.
- ITU actively promoting IPv6 deployment





Web resources

- ITU-T Study Group 16
→ <http://itu.int/ITU-T/go/sg16>
- ITU-T Recommendations
→ <http://itu.int/rec/T-REC>
- ITU-T Workshops
→ <http://itu.int/ITU-T/worksem>
- IPTV work
→ <http://itu.int/ITU-T/gsi/iptv>
- Next generation video coding
→ <http://itu.int/ITU-T/studygroups/com16/jct-vc>
- Media coding summary database
→ <http://itu.int/ITU-T/go/mcsd>
- Advanced multimedia system
→ <http://itu.int/ITU-T/go/ams>
- Multimedia accessibility
→ <http://itu.int/ITU-T/studygroups/com16/accessibility>