

This paper is a 'draft working paper' reflecting the preliminary findings of the drafting team. It has been subject to review by all WGIG members, but it does not necessarily present a consensus position nor does it contain agreed language accepted by every member. This draft working paper has been published on the WGIG website for public comment.

## Assessment of Governance Arrangements for Cluster 1a Issues

Important Note: Many of the issues arising in connection with governance arrangements for the physical telecommunications infrastructure are in common with other important areas of relevance to Internet governance. This paper should be read in parallel with the paper entitled: *Towards a Common Understanding of the Roles and Responsibilities of the Stakeholders in Internet Governance* which attempts to encapsulate discussion of the more generic issues.

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### Introduction

This cluster consists of issues relating to physical infrastructure including related technical standards, peering and inter-connection, and telecommunications infrastructure including innovative and converged technologies. These issues are matters of direct relevance to Internet Governance and for the most part fall within the ambit of existing organizations with responsibility for these matters.

Issues: Physical and Secured infrastructure

- Telecommunications infrastructure, broadband access
- VoIP
- Peering and interconnection
- Spectrum policy
- Technical standards

The Internet can be defined as the large number of interconnected networks which use common Internet protocols, especially TCP/IP. These networks, and the applications layered over them, are all dependent on the underlying physical infrastructure, vis the telecommunications networks. At the same time, Internet protocols are being deployed as a key element in the core telecommunications networks and form the basis of the Next Generation Network, a generic term that encompasses the convergence of technologies and applications resulting from digitization and packetization of all telecommunications services, and is of interest to many different organizations at national, regional and international levels.

## Report Card Templates

### I

#### 1. Issue: Telecommunications infrastructure, broadband access

#### 2. Institutions:

ITU, private and publicly-owned companies, Regional coordination groups (e.g. EU/European Regulators Group, CEPT)

#### 3. Relationship to the Internet:

The Internet is directly dependent on the underlying physical infrastructure being available, secure, well managed, of adequate capacity and service quality and interconnected. At the same time much of the core telecommunications networks are using Internet protocols so that the dependency is deep and two-fold. International peering and interconnection arrangements can have an impact on both costs and quality of Internet services (see III Peering and Interconnection).

#### 4. Governance Mechanism:

The primary governance mechanism for the telecommunications networks is through national regulatory bodies, mediated by international agreements through regional institutions like those of the EU or treaty organizations such as the WTO (relating to investment and ownership) and standards developed through various study groups within the ITU and through regional standards developing organizations. The ITU is responsible for the International Telecommunications Regulations which constitute an international treaty covering the provision and operation of international telecommunications services offered to the public and the underlying international telecommunications transport means used to provide such services.

A de facto form of governance is arising from international arrangements being increasingly negotiated by the private telecommunications service providers who own the infrastructure.

Broadband access in the 'last mile' is a matter of national development and regulation, with some moderation through international investment and trade rules. In some jurisdictions there is heavy reliance on industry self-regulation. International access to bandwidth is subject to investigation by a number of international organizations (see III Peering and Interconnection).

#### 5. Evaluation against WSIS criteria:

**5 (a) Process Criteria** *(To what extent to the institution's Internet-related governance mechanisms meet the following criteria, given what could be reasonably expected in light of the governance mechanism used?)*

- (i) Multilateral: ITU and WTO are both multilateral international treaty-based organizations.
- (ii) Transparent: The ITU website has excellent papers and provides excellent services for members but there are some issues with access for non-members, although there is limited provision for free access to ITU-T recommendations, for example. Private sector companies are seldom transparent in their decision-making processes.
- (iii) Democratic: All UN member countries are eligible for membership of the ITU however, some countries have greater capacity to influence the decision making process compared with others.
- (iv) Full participation: Participation from civil society and the academic sectors is very low. Generally, the only way for private sector members and other non-government organizations to influence key policy issues is through their membership of national delegations, although in the case of the ITU formal provision is made for participation by private sector members. Private telecommunications service providers seldom, if ever, provide opportunities for participation in decision-making leaving national governments as having the role of representing general public interests.

**5 (b) Role and responsibility criteria** *(To what extent do the institution's Internet-related governance mechanisms enable the different stakeholder groups to fulfill their roles and responsibilities as defined by WSIS? To what extent do the different stakeholder groups have the capacity to fulfill their roles and responsibilities?)*

- (i) Governments: To the extent that international organizations are responsible for governance of physical infrastructure, governments as members of the ITU have the potential for full involvement. However, there is a need for further efforts to increase the participation from governments of developing countries, and capacity building can help in that respect..
- (ii) Private Sector: International physical infrastructure is privately owned and operated, as is much of the national infrastructure in many countries. There is a need for further efforts to increase the participation from the private sector from developing countries in international organizations.
- (iii) Civil society: Civil Society is usually not in a position to influence at either national or international levels except through the influencing national governments and membership of national delegations to international organizations.
- (iv) Intergovernmental organizations: ITU is central to this issue, WTO also relevant to investment rules.
- (v) Other international organizations:

**5 (c) Outcome Criteria** *(How effectively do the institution's Internet-related governance mechanisms contribute to achievement of the following goals?)*

- (i) Equitable distribution of resources: This falls to national regulators (governments) through mechanisms such as universal service arrangements and encouragement of investment.
- (ii) Access for all: There is a need for further efforts to increase the participation from both governments and the private sector from developing countries in international organizations and capacity building can help in that respect.
- (iii) Stable and secure functioning: World-wide telecommunications infrastructure works well and for the most part is very secure and highly reliable.
- (iv) Multilingualism: UN Organizations provide full translation between the six UN languages. There is very limited direct involvement for other languages but there is an expectation that national governments will provide translation and publication nationally as required to permit adequate participation for all languages and cultures.

**6. Coordination:** *How effectively is governance of this issue coordinated with governance of other Internet-related issues?*

Co-ordination at the international level is through the various Sectors and Study Groups of the ITU, on the one hand, and internationally negotiated private sector arrangements on the other, and generally functions well.

**7. Overall assessment:** *What are the points that most need improvement in order to meet the WSIS criteria?*

At the international level, governance in this area is mainly under auspices of intergovernmental treaty organizations on the one hand and private sector owners of infrastructure on the other. Participation by civil society is low and there is a need for increased participation from the developing worlds.

## II

### 1. Issue: Voice over Internet Protocols (VoIP)

### 2. Institutions:

The issue is being discussed at various levels:

Regional fora

- OECD
- APEC
- CITELE

International standards

- ITU, IETF, SIP Forum, MultiService Forum

National regulators

Regional Groupings of National Governments/Regulators including:

- EMEA: Austria, Denmark, France, Germany, Ireland, Malta, Spain, South Africa, UK
- Asia Pacific: Australia, Hong Kong, Japan, Philippines, Singapore, South Korea
- CALA: Canada, Chile, Colombia, Dominican Rep
- European Commission, European Regulators' Group

### 3. Relationship to the Internet:

VoIP is an application layered over IP networks. These may be part of the Internet, or may be more or less isolated private IP networks, generally within single corporate entities.

### 4. Governance Mechanism:

Standards bodies are ITU and IETF. The primary international governance mechanism is provided through the ITU, with varying degrees of national-level regulation. The primary concerns as far as the application is concerned are:

- (i) end-to-end quality of service (QOS) across both individual networks, and the interconnections between networks;
- (ii) standards and interconnection arrangements between VoIP networks and VoIP services and conventional PSTN telephony services.

National regulators are having to deal with the question of how, or indeed if, VoIP services are regulated alongside conventional PSTN services. Of particular concern are universal service obligations, emergency services, legal intercept and tariffing.

### 5. Evaluation against WSIS criteria:

***5 (a) Process Criteria*** (To what extent to the institution's Internet-related governance mechanisms meet the following criteria, given what could be reasonably expected in light of the governance mechanism used?)

- (i) Multilateral: The ITU is a multilateral treaty-based international organization and many of the other group involved are regionally-based international organizations. ETSI is an international organization open for membership by any organization or company.
- (ii) Transparent: ETSI and IETF standards can be downloaded for free.
- (iii) Democratic:
- (iv) Full participation: IETF is an organization with few representatives from developing countries (need for capacity building).

**5 (b) Role and responsibility criteria** *(To what extent do the institution's Internet-related governance mechanisms enable the different stakeholder groups to fulfill their roles and responsibilities as defined by WSIS? To what extent to the different stakeholder groups have the capacity to fulfill their roles and responsibilities?)*

- (i) Governments: To the extent that international organizations are responsible for standards development, governments are fully involved.
- (ii) Private Sector: QOS decisions which effect the level of reliability and service delivery may be made on the basis of overall marketing strategies on the part of those organizations responsible for, and in control of access to, the underlying physical infrastructure (which are frequently privately owned and operated), rather than the needs of users.
- (iii) Civil society: The IETF has an open membership but participation from developing countries is low.
- (iv) Intergovernmental organizations: ITU has a key role in standards development and provides a forum for discussion of QOS in interconnection arrangements
- (v) Other international organizations:

**5 (c) Outcome Criteria** *(How effectively to the institution's Internet-related governance mechanisms contribute to achievement of the following goals?)*

- (i) Equitable distribution of resources
- (ii) Access for all
- (iii) Stable and secure functioning:
- (iv) Multilingualism: UN Organizations provide full translation between the six UN languages. There is very limited direct involvement for other languages but there is an expectation that national governments will provide translation and publication nationally as required to permit adequate participation for all languages and cultures.

**6. Coordination:** *How effectively is governance of this issue coordinated with governance of other Internet-related issues?*

Overall standards are well developed and the main concerns are with operational issues, in particular with end-to-end guarantees of service quality. There may be a need/opportunity for the provision of facilities for telecommunications service providers to conduct multi-party negotiations in order to ensure that service quality is maintained across the different networks traversed by VoIP services.

**7. Overall assessment:** *What are the points that most need improvement in order to meet the WSIS criteria?*

The right types of organizations exist for appropriate co-ordination of activities, however, there may be opportunities to make better use of these facilities. There is a need to create some mechanisms in these organizations to permit full participation for actors from developing countries.

### III

#### 1 Issue: Peering and Interconnection

#### 2 Institutions:

ITU-T, APEC TEL, CITEL, private and publicly owned companies

#### 3. Relationship to the Internet:

Interconnection standards and agreements, including peering arrangements, are critical to the successful functioning of the Internet and for maintaining its end-to-end and cost-effective availability, and reliability.

#### 4. Governance Mechanism:

The primary mechanism for interconnection and peering is private negotiated arrangements or contracts between the owners of the physical infrastructure which do not necessarily fall under the rubric of international governance mechanisms. International interconnection arrangements and costs have been a matter of study and debate, especially within the ITU and APEC TEL. ITU-T has negotiated a set of principles for international Internet connection, published as Recommendation D.50, as amended in 2004, however it is not clear to what extent this recommendation has had any effect on interconnection arrangements to date.

#### 5. Evaluation against WSIS criteria:

**5 (a) Process Criteria** *(To what extent to the institution's Internet-related governance mechanisms meet the following criteria, given what could be reasonably expected in light of the governance mechanism used?)*

- (i) Multilateral: The ITU is a multilateral treaty-based organization but most peering arrangements are negotiated between private parties without any government involvement.
- (ii) Transparent: The terms of private arrangements are seldom disclosed.
- (iii) Democratic: Private arrangements are not democratic by definition
- (iv) Full participation: Because ownership of the underlying physical networks is private, all other parties are excluded from negotiating processes.

**5 (b) Role and responsibility criteria** *(To what extent do the institution's Internet-related governance mechanisms enable the different stakeholder groups to fulfill their roles and responsibilities as defined by WSIS? To what extent to the different stakeholder groups have the capacity to fulfill their roles and responsibilities?)*

- (i) Governments: Governments are generally excluded from interconnection agreements. There is debate as to the extent that implementation of ITU Recommendation D.50 would influence this.
- (ii) Private Sector: Arrangements are private and confidential to the parties concerned
- (iii) Civil society: Excluded
- (iv) Intergovernmental organizations: The ITU is involved in standards only, otherwise excluded from direct negotiations.
- (v) Other international organizations: Excluded

**5 (c) Outcome Criteria** *(How effectively to the institution's Internet-related governance mechanisms contribute to achievement of the following goals?)*

- (i) Equitable distribution of resources:
- (ii) Access for all: These arrangements could reduce the cost to the end user in some developing countries, facilitating the implementation of Universal access.
- (iii) Stable and secure functioning
- (iv) Multilingualism

**6. Coordination:** *How effectively is governance of this issue coordinated with governance of other Internet-related issues?*

This is very difficult to judge given the confidential arrangements between private sector players.

**7. Overall assessment:** *What are the points that most need improvement in order to meet the WSIS criteria?*

Increasingly, international interconnection arrangements are placed under private sector contractual arrangements. A mechanism for formal international implementation of ITU Recommendation D.50 would be unlikely to change the lack of transparency or opportunity for multi-stakeholder participation because of the nature of commercial arrangements between the contracting parties.

## IV

### 1. Issue: Spectrum Policy

### 2. Institutions:

ITU, National governments, Regional coordination groups (e.g. CEPT, EU Radio Spectrum Policy Group)

### 3. Relationship to the Internet:

To the extent that the infrastructure on which the Internet depends is based on wireless communications systems, there is a reliance on spectrum policies, management and availability. Increasingly in many countries community-based and household networks rely on general license or free access spectrum in the 2.4 and 5 GHz bands (802.11b/g, WiFi) and open spectrum (WiMax) for Internet access.

### 4. Governance Mechanism:

ITU is the global organization responsible for radio spectrum policies and agreements and standards. The regional organizations in each region of ITU are the most important institutions for the national governments. For Europe these are CEPT and EU's Radio Spectrum Committee (RSP) and Radio Spectrum Policy Group (RSPG). National governments are responsible for radio spectrum policies and management within their jurisdiction.

### 5. Evaluation against WSIS criteria:

**5 (a) Process Criteria** (To what extent to the institution's Internet-related governance mechanisms meet the following criteria, given what could be reasonably expected in light of the governance mechanism used?)

- (i) Multilateral: ITU is a multilateral treaty-based international organization
- (ii) Transparent:
- (iii) Democratic:
- (iv) Full participation

**5 (b) Role and responsibility criteria** (To what extent do the institution's Internet-related governance mechanisms enable the different stakeholder groups to fulfill their roles and responsibilities as defined by WSIS? To what extent to the different stakeholder groups have the capacity to fulfill their roles and responsibilities?)

- (i) Governments: ITU is multilateral, and governments are solely reliable for spectrum management and policies within their jurisdiction
- (ii) Private Sector: Responsible for spectrum under license agreements with responsible governments
- (iii) Civil society: There is some involvement of civil society groups in ITU-R.
- (iv) Intergovernmental organizations: ITU is central to international standards and agreements
- (v) Other international organizations

**5 (c) Outcome Criteria** (How effectively to the institution's Internet-related governance mechanisms contribute to achievement of the following goals?)

- (i) Equitable distribution of resources
- (ii) Access for all
- (iii) Stable and secure functioning
- (iv) Multilingualism: UN Organizations provide full translation between the six UN languages. There is very limited direct involvement for other languages but there is an expectation that national governments will provide translation and publication nationally as required to permit adequate participation for all languages and cultures.

**6. Coordination:** *How effectively is governance of this issue coordinated with governance of other Internet-related issues?*

International co-ordination of radio spectrum through ITU-R is excellent.

**7. Overall assessment:** *What are the points that most need improvement in order to meet the WSIS criteria?*

While some believe that current mechanisms for allocating spectrum work well and are satisfactory, others feel that this is not the case. Some are disturbed at what has happened in the past (e.g. auctions of mobile telephony spectrum) and note that there is a risk that regulatory measures can impede or slow down the adoption of new technologies (e.g. WiMax).

There is a need to encourage greater participation by developing countries in industry forums such as IEEE where wireless standards are agreed and capacity building can help in that respect.

## V

### 1. Issue: Technical Standards

### 2. Institutions:

Government/Industry: ITU, ETSI;

Private sector: Alliance for Telecommunications Solutions (ATIS), ASCII, W3C, 3GPP, 3GPP2 , Various Industry fora including: MultService Forum (MSF), Telemanagement Forum(TMf) , VoIP Forum, MPLS and Frame Relay Forum (MFA);

Civil society (Individual Participation): IETF, IEEE.

### 3. Relationship to the Internet:

The Internet is totally based on widely or universally accepted standards at all levels.

### 4. Governance Mechanism:

There are currently few governance mechanisms other than market forces. Each of the standards organizations has its own method of determining the status of standards.

Several examples include:

- National voting on recommendations (ISO, IEC, ETSI)
- One company one vote (many industry fora)
- Full consensus of the membership (ITU)
- ‘Rough consensus and running code’: demonstration of interoperability and proof that things actually work, with review/approval by technical management which has been put in place by a nominating committee drawn from individual participants (IETF).

### 5. Evaluation against WSIS criteria:

**5 (a) Process Criteria** *(To what extent to the institution’s Internet-related governance mechanisms meet the following criteria, given what could be reasonably expected in light of the governance mechanism used?)*

- (i) Multilateral: The ITU is a multilateral treaty-based international organization
- (ii) Transparent : Transparent. Several of the SDOs (Standards Development Organizations) (like ETSI, 3GPP, 3GPP2) have an open policy with respect to document accessibility.
- (iii) Democratic
- (iv) Full participation: The IETF is an organization with limited government participation and with few representatives from developing countries (capacity building). IETF and other SDOs have few (if any) membership restrictions, i.e. actors from all parts of the society may join.

**5 (b) Role and responsibility criteria** *(To what extent do the institution’s Internet-related governance mechanisms enable the different stakeholder groups to fulfill their roles and responsibilities as defined by WSIS? To what extent to the different stakeholder groups have the capacity to fulfill their roles and responsibilities?)*

- (i) Governments: To the extent that international organizations are responsible for governance of physical infrastructure, governments are fully involved.
- (ii) Private Sector: International physical infrastructure is privately owned and operated, as is much of the national infrastructure in many countries
- (iii) Civil society: Membership of the IETF is open to all people who wish to participate.
- (iv) Intergovernmental organizations: ITU is central to this issue, WTO also relevant to investment rules
- (v) Other international organizations

**5 (c) Outcome Criteria** (*How effectively to the institution's Internet-related governance mechanisms contribute to achievement of the following goals?*)

- (i) Equitable distribution of resources
- (ii) Access for all: Some standards can contribute to improve the access for all.
- (iii) Stable and secure functioning
- (iv) Multilingualism: UN Organizations provide full translation between the six UN languages. There is very limited direct involvement for other languages but there is an expectation that national governments will provide translation and publication nationally as required to permit adequate participation for all languages and cultures.

**6. Coordination:** *How effectively is governance of this issue coordinated with governance of other Internet-related issues?*

Despite the multiplicity of organisations involved, the limited and overlapping memberships of many of these mean that co-ordination is generally good.

Nevertheless, problems may arise when technical bodies are not well informed of critical policy issues, and vice versa – a recent example involved the DNSSEC standard where there was a potential clash between the technical standard and access to Zone File information. In this case a near final draft standard for the secure distribution of zone files could have resulted in circumvention of policies held by some TLD managers that limits or precludes general access to zone file information.

**7. Overall assessment:** *What are the points that most need improvement in order to meet the WSIS criteria?*

The highly technical nature of standards development and promulgation means that many organizations and countries that might wish to have a voice, or to closely track and anticipate developments lack the capacity to become involved. This applies to all organizations engaged in standards development work.