### ITU – NTA Workshop on National Cybersecurity Awareness in Nepal

## ITU's work in Cybersecurity Global Cybersecurity Index (GCI) & COP

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# ITU is the specialized agency of the UN for telecommunications and ICTs ...



### ... and turns 150 years in 2015

### Theme for all year celebrations: "Telecommunications and ICTs: drivers of innovation"





### **ITU: A Brief Overview**

#### Founded in 1865

 Member States Sector Members Associates 90 Academia

A specialized agency of the UN with focus on Telecommunication / ICTs

> **ITU-R**: ITU's Radio-communication Sector globally manages radio-frequency spectrum and satellite orbits that ensure safety of life on land, at sea and in the skies.



ITU-T: ITU's Telecommunication Standardization Sector enables global communications by ensuring that countries' ICT networks and devices are speaking the same language.

**ITU-D**: ITU's Development Sector fosters international cooperation and solidarity in the delivery of technical assistance and in the creation, development and improvement of telecommunication/ICT equipment and networks in developing countries.



Headquartered in Geneva, **4** Regional Offices 7 Area Offices.





### **ITU: Regional Office for Asia and the Pacific**

38 Member States 134 Sector Members, Associates 17 Academia

Land Locked Developing Countries (5)

| Least Develope   | ed Countries (12)                            |  | L   | ow-Income States (10)   | The Rest (10)  |  |
|--|--|--|---|---|--|--|
| Afghanistan<br>Bangladesh<br>Bhutan<br>Cambodia<br>Lao, PDR<br>Nepal | Kiribati<br>Solomon Is.<br>Tuvalu<br>Vanuatu | Fiji<br>Maldives<br>Marshall Islands<br>Micronesia<br>Nauru<br>Tonga | ii PNG<br>aldives Samoa<br>arshall Islands<br>icronesia<br>auru<br>onga | D.P.R. Korea<br>India<br>Indonesia<br>Mongolia<br>Pakistan<br>Philippines | Australia<br>Brunei<br>China/Hong Kong<br>Iran<br>Japan<br>Malaysia<br>New Zealand |  |
| Timor Leste  | Small Isl                                    | ands Developing States (1  | .2)   | Vietnam   | Singapore<br>Thailand  |  |





### **ITU-D Sector & Associate Members: Asia-Pacific Region**

| 1.        | Afghan Wireless Communication Co Afghanistan                                       | 37. | Nomura Research Institute Ltd Japan                                     |
|-----------|--|-----|---|
| 2.        | Asia Pacific Network Information Centre - Australia                                | 38. | The ITU Association of Japan  |
| 3.        | The Cyber Guardian Pty Ltd Australia   | 39. | Korea Information Society Development Institute (KISDI) - R.O.Korea     |
| 4.        | Grameenphone (GP) Limited - Bangladesh   | 40. | KT Corporation _ R.O. Korea   |
| 5.        | Orascom Telecom Bangladesh Limited (Banglalink)                                    | 41. | National Information Society Agency (NIA) - R.O. Korea                  |
| 6.        | Robi Axiata Limited - Bangladesh   | 42. | Samsung SDS Co.Ltd, R.O. Korea  |
| 7.        | Telekom Brunei Berhad (TelBru) - Brunei Darussalam                                 | 43. | SK Telecom, R.O. Korea  |
| 8.        | CHUAN WEI (Cambodia) Co., Ltd Cambodia   | 44. | Altel Communications Sdn Bhd - Malaysia                                 |
| 9.        | China Telecommunications Corporation - China                                       | 45. | Asia-Pacific Broadcasting Union - Malaysia                              |
| 10.       | China Unicom (Hong Kong) Ltd China   | 46. | Asia-Pacific Institute for Broadcasting Development - Malaysia          |
| 11.       | Huawei Technologies Co. Ltd China  | 47. | Axiata Group Berhad, Malaysia   |
| 12.       | ZTE Corporation - China  | 48. | Green Packet Berhad - Malaysia  |
| 13.       | Amalgamated Telecom Holdings Limited (ATH) - Fiji                                  | 49. | Maxis Mobile Sdn Bhd Malaysia   |
| 14.       | Secretariat of the Pacific Community (SPC) - Fiji                                  | 50. | MEASAT Satellite Systems Sdn. Bhd Malaysia                              |
| 15.       | Bharat Sanchar Nigam Ltd India   | 51. | Telekom Malaysia Berhad - Malaysia                                      |
| 16.       | Bharti Airtel Limited - India  | 52. | Communications Regulatory Commission of Mongolia                        |
| 17.       | Centre for Internet and Society - India  | 53. | Information Communication Network Company - Mongolia                    |
| 18.       | Cellular Operators Association of India  | 54. | MobiCom Corporation - Mongolia  |
| 19.       | ITU-APT Foundation of India  | 55. | Ncell Pvt.Ltd Nepal   |
| 20.       | RailTel Corporation of India Limited, India  | 56. | Nepal Telecom Company Limited- Nepal                                    |
| 21.       | Telecom Disputes Settlement & Appellate Tribunal - India                           | 57. | Nepal Telecommunications Authority - Nepal                              |
| 22.       | Telecom Regulatory Authority of India  | 58. | CMPak Limited , Islamabad, Pakistan                                     |
| 23.       | Vihaan Networks Limited (VNL), India   | 59  | Multinet Pakistan (PVT) Limited LAHORE Pakistan                         |
| 24.       | PT. INDOSAT Tbk Indonesia  | 57. | Palistan Habila Communications Limited (DHCL) – Dabieters               |
| 25.       | PT. Telekomunikasi Indonesia Tbk - Indonesia                                       | 60. | Pakistan Mobile Communications Limited (PMCL), Pakistan                 |
| 26.       | Irancell Telecommunication Services Company - I.R Iran                             | 61. | Telenor Pakistan (Pvt) Ltd. , Islamabad, Pakistan                       |
| 27.       | Iranian Net Communication & Electronic Services Co I.R. Iran                       | 62. | Center for Strategic and Policy Analysis Technology Policy Commission , |
| 28.       | Telecommunication Company of Iran (TCI)  |     | KARACHI, Pakistan   |
| 29.       | Fujitsu Limited - Japan  | 63. | Smart Communications, Inc Philippines                                   |
| 30.       | Hitachi, Ltd Japan   | 64. | Telecentre.org Foundation - Philippines                                 |
| 31.       | KDDI Corporation - Japan   | 65. | ROHDE & SCHWARZ Regional Headquarters Singapore Pte. Ltd Singapore      |
| 32.       | Mitsubishi Electric Corporation - Japan  | 66. | Sri Lanka Telecom Ltd Sri Lanka   |
| 33.       | National Institute of Information and Communications Technology -                  | 67. | Advanced Info Service Public Company Ltd Thailand                       |
| 24        | Japan<br>NEC Correction Japan  | 68. | Advanced Wireless Network Company Limited - Thailand                    |
| ა4.<br>25 | NEC COrporation - Japan<br>Ninnen Telegraph and Telephone Fact Corporation - Japan | 69. | Asia-Pacific Telecommunity - Thailand                                   |
| 55.<br>26 | Nippon Telegraph and Telephone West Corporation - Japan                            | 70. | Total Access Communication PLC - Thailand                               |
| 50.       | hippon relegraph and relephone west corporation - Japan                            | 71. | True Corporation Public Co., Ltd Thailand                               |
|           |  | -72 | Viettel Corporation, VietNam  |





### **ICT Services Uptake**

Global, 2014

Mobile cellular subscriptions: - Almost 7 billion

Mobile broadband penetration: - 84% developed countries - 21% developing countries

Fixed broadband penetration:

- 27.5 % developed countries
- 6 % developing countries
- Almost 3 billion people online (individuals using the Internet)

### Who's online?

By region, 2014

Not online Online







### Importance of Cybersecurity

- From industrial age to information societies
  - Increasing dependence on the availability of ICTs
  - Number of Internet users growing constantly (now 40% of world's population)
- Statistics and reports show that cyber-threats are on the rise
  - The likely annual cost to the global economy from Cybercrime is estimated at more than \$455 billion (Source: McAfee Report on Economic Impact of Cybercrime, 2013).
- Developing countries most at risk as they adopt broader use of ICTs
  - E.g. Africa leading in Mobile-broadband penetration: almost 20% in 2014 - up from less than 2% in 2010 (Source: ITU ICT Statistics)
- Need for building cybersecurity capacity
  - Protection is crucial for the socio-economic wellbeing of a country in the adoption of new technologies









### **Coordinated Response**





## **Key Cybersecurity Challenges**



- Lack of adequate and interoperable national or regional legal frameworks
- Lack of secure software and ICT-based applications
- Lack of appropriate national and global organizational structures to deal with cyber incidents
- Lack of information security professionals and skills within governments; lack of basic awareness among users
- Lack of international cooperation between industry experts, law enforcements, regulators, academia & international organizations, etc. to address a global challenge





Cybersecurity not seen yet as a cross-sector, multi-dimensional concern. Still seen as a technical/technology problem.

### **ITU mandate on cybersecurity**

2003 – 2005 WSIS entrusted ITU as sole facilitator for WSIS Action Line C5 -"Building Confidence and Security in the use of ICTs"





2007 Global Cybersecurity Agenda (GCA) was launched by ITU Secretary General GCA is a framework for international cooperation in cybersecurity

2008 to date ITU Membership endorsed the GCA as the ITU-wide strategy on international cooperation.



Building confidence and security in the use of ICTs is widely present in **PP and Conferences**' resolutions. In particular WTSA 12, PP 10 and WTDC 10 produced Resolutions (WTSA 12 Res 50, 52, 58, PP Res 130, 174, 179, 181 and WTDC 45 and 69) which touch on the most relevant ICT security related issues, from legal to policy, to technical and organization measures.



### **Global Cybersecurity Agenda (GCA)**

- GCA is designed for cooperation and efficiency, encouraging collaboration with and between all relevant partners, and building on existing initiatives to avoid duplicating efforts.
- GCA builds upon five pillars:
  - 1. Legal Measures
  - 2. Technical and Procedural Measures
  - 3. Organizational Structure
  - 4. Capacity Building
  - 5. International Cooperation
- Since its launch, GCA has attracted the support and recognition of leaders and cybersecurity experts around the world.







### **GCA: From Strategy to Action**

#### 1. Legal Measures

Publication : Understanding Cybercrime A Guide for Developing Countries MoU with UNODC for assistance ITU-EC project model law for ACP

## 2

#### 2. Technical and Procedural Measures

ITU Standardization Work: ITU-T , ITU-D SG1 Q22 ITU-R recommendations on security ICT Security Standards Roadmap ITU-T JCA on COP

#### 3. Organizational Structures

National CIRT deployment ITU work on National CIRTs cooperation ITU Cybersecurity Information Exchange Network (CYBEX) ITU-D SG 1 Q22

### 4. Capacity Building



#### 5. International Cooperation

ITU High-Level Expert Group (HLEG) ITU's Child Online Protection(COP) Collaboration with UN, and other IGOs, as well as with Symantec, Trend Micro, ABI research, ISOC, Interpol, FIRST, CCI, CTO, & UNODC ITU National Cybersecurity Strategy Guide Report on ITU-D SG1 Q22 Technical assistance and projects: LDCs Regional Cybersecurity Seminars National Cyber drills



Global Cybersecurity

Agenda (GCA)

### **Economies in Asia-Pacific – IDI Rankings**

| Economy           | Regional rank<br>2013 | Global rank<br>2013 | 1D1<br>2013 | Global rank<br>2012 | IDI 2012 | Global rank<br>change<br>2012-2013 |
|-------------------|-----------------------|---------------------|-------------|---------------------|----------|------------------------------------|
| Korea (Rep.)      | 1                     | 2                   | 8.85        | 1                   | 8.81     | -1                                 |
| Hong Kong, China  | 2                     | 9                   | 8.28        | 11                  | 8.08     | 2                                  |
| Japan             | 3                     | 11                  | 8.22        | 10                  | 8.15     | -1                                 |
| Australia         | 4                     | 12                  | 8.18        | 12                  | 8.03     | 0                                  |
| Singapore         | 5                     | 16                  | 7.90        | 15                  | 7.85     | -1                                 |
| New Zealand       | 6                     | 19                  | 7.82        | 19                  | 7.62     | 0                                  |
| Macao, China      | 7                     | 22                  | 7.66        | 20                  | 7.59     | -2                                 |
| Brunei Darussalam | 8                     | 66                  | 5.43        | 63                  | 5.36     | -3                                 |
| Malaysia          | 9                     | 71                  | 5.20        | 66                  | 5.18     | -5                                 |
| Thailand          | 10                    | 81                  | 4.76        | 91                  | 4.09     | 10                                 |
| Maldives          | 11                    | 85                  | 4.71        | 82                  | 4.50     | -3                                 |
| China             | 12                    | 86                  | 4.64        | 86                  | 4.39     | 0                                  |
| Fiji              | 13                    | 91                  | 4.40        | 103                 | 3.90     | 12                                 |
| Mongolia          | 14                    | 92                  | 4.32        | 90                  | 4.19     | -2                                 |
| Iran (I.R.)       | 15                    | 94                  | 4.29        | 97                  | 4.02     | 3                                  |
| Viet Nam          | 16                    | 101                 | 4.09        | 99                  | 3.94     | -2                                 |
| Philippines       | 17                    | 103                 | 4.02        | 102                 | 3.91     | -1                                 |
| Indonesia         | 18                    | 106                 | 3.83        | 106                 | 3.70     | 0                                  |
| Sri Lanka         | 19                    | 116                 | 3.36        | 113                 | 3.31     | -3                                 |
| Bhutan            | 20                    | 123                 | 2.85        | 126                 | 2.58     | 3                                  |
| Cambodia          | 21                    | 127                 | 2.61        | 127                 | 2.54     | 0                                  |
| India             | 22                    | 129                 | 2.53        | 129                 | 2.42     | 0                                  |
| Nepal             | 23                    | 131                 | 2.37        | 134                 | 2.20     | 3                                  |
| Lao P.D.R.        | 24                    | 134                 | 2.35        | 130                 | 2.25     | -4                                 |
| Solomon Islands   | 25                    | 136                 | 2.29        | 132                 | 2.22     | -4                                 |
| Pakistan          | 26                    | 142                 | 2.05        | 141                 | 2.01     | -1                                 |
| Bangladesh        | 27                    | 145                 | 1.97        | 146                 | 1.90     | 1                                  |
| Myanmar           | 28                    | 150                 | 1.82        | 148                 | 1.75     | -2                                 |
| Afghanistan       | 29                    | 155                 | 1.67        | 155                 | 1.57     | 0                                  |
| Average*          |                       | 10.000              | 4.57        | 100-2020            | 4.42     |                                    |

Note: \*Simple averages. Source: ITU.





### **Global Cybersecurity Index**

#### Objective

The Global Cybersecurity Index (GCI) aims to measure the level of commitment of each nation in cybersecurity in five main areas:

- Legal Measures
- Technical Measures
- Organizational Measures
- Capacity Building
- National and International Cooperation

**104 countries** have responded

Final Global and Regional Results 2014 are on ITU Website

http://www.itu.int/en/ITU-D/Cybersecurity/Pages/GCI.aspx

Next iteration in progress



Global Cybersecurity Index











### **Global Ranking 2014 - Top 5**

Many countries share the same ranking which indicates that they have the same level of readiness. The index has a low level of granularity since it aims at capturing the cybersecurity commitment/preparedness of a country and NOT its detailed capabilities or possible vulnerabilities.

| Country                  | Index | Global<br>Rank |
|--------------------------|-------|----------------|
| United States of America | 0.824 | 1              |
| Canada                   | 0.794 | 2              |
| Australia                | 0.765 | 3              |
| Malaysia                 | 0.765 | 3              |
| Oman                     | 0.765 | 3              |
| New Zealand              | 0.735 | 4              |
| Norway                   | 0.735 | 4              |
| Brazil                   | 0.706 | 5              |
| Estonia                  | 0.706 | 5              |
| Germany                  | 0.706 | 5              |
| India                    | 0.706 | 5              |
| Japan                    | 0.706 | 5              |
| Republic of Korea        | 0.706 | 5              |
| United Kingdom           | 0.706 | 5              |





## **Top Performers in Asia-Pacific**

| Country – Asia<br>Pacific | Index  | Regional Rank |
|---------------------------|--------|---------------|
| Australia                 | 0.7647 | 1             |
| Malaysia                  | 0.7647 | 1             |
| New Zealand               | 0.7353 | 2             |
| India                     | 0.7059 | 3             |
| Japan                     | 0.7059 | 3             |
| Republic of Korea         | 0.7059 | 3             |





### **Cyberwellness Country Profiles**

Factual information on cybersecurity achievements on each country **based on the GCA pillars** 

Over 196 profiles to date

Live documents – Invite countries to assist us in maintaining updated information cybersecurity@itu.int

#### CYBERWELLNESS PROFILE IT U AUSTRIA Internet users, percentage of population: 80.62% Total Population: 8 429 000 data source: United Nations (data source: ITU Statistics, December 2013) December 2012) 1 CYRERSECURITY 1.1 LEGAL MEASURES 1.1.1 CRIMINAL LEGISLATION Specific legislation on cybercrime has been enacted through the following instrument: - Penal Code. 1.1.2 REGULATION AND COMPLIANCE Specific legislation and regulation related to cybersecurity has been enacted through the following instruments: - E-Commerce Act - The Austrian E-Government Act Sederal Electronic Signature Law Federal Act on the Protection of Personal Data istrian Signature Ordinance 1.2 TECHNICAL MEASURES 1.2.1 CIRT Austria has an officially recognized government CIRT (GovCERT.AT) and a military CERT (milCERT) operated by the Defence Agency (Abwehramt) and the Command Support Centre (Führungsunterstützungszentrum) of the Federal Ministry of Defense and Sports (BMVLS). 1.2.2 STANDARDS There is no available information regarding any officially approved national (and sector specific) cybersecurity frameworks for implementing internationally recognized cybersecurity standards. 1.2.3 CERTIFICATION There is no available information regarding any officially approved national (and sector specific) cybersecurity frameworks for the certification and accreditation of national agencies and public sector professionals 1.3 ORGANIZATION MEASURES 1.3.1 POUCY Austria has officially recognized a National ICT Security Strategy in 2012 and an Austrian cypersecurity strategy in 2013 132 ROADMAP FOR GOVERNANCE The implementation of the measures adopted by the federal government in March 2013 in order to increase national cyber security are monitored by the Cyber Security Steering Group (consisting of members liaising with the National Security Council as well as the cyber security experts of all ministries) which provides the nation governance roadmap for cybersecurity in Austria.





## Next GCI – results in 2016

### GCI is a component in PP-14 Resolution 130 (Busan, 2014)

### **Ultimate Goal**

Promote government strategies at a national level Drive implementation efforts across industries and sectors Integrate security into the core of technological progress Foster a global culture of cybersecurity

Next Steps Open GCI to industry and academia partners Evolution to GCI version 2 – deeper and wider

Contact us at cybersecurity@itu.int





## **ITU Child Online Protection (COP)**

ITU launched the Child Online Protection (COP) Initiative in 2008 within the framework of the Global Cybersecurity Agenda (GCA), aimed at bringing together partners from all sectors of the global community to ensure a safe and secure online experience for children everywhere.

### Key Objectives of COP

- Identify risks and vulnerabilities to children in cyberspace;
- Create awareness of the risks and issues through multiple channels;
- Develop practical tools to help governments, organizations and educators minimize risk; and
- Share knowledge and experience while facilitating international strategic partnership to define and implement concrete initiatives



Partners:

- 10 international organizations
- 34 civil society organizations
- 13 private sector organizations





## **COP Five Strategic Pillars**



- COP high-level deliverables across the five strategic pillars are designed to be achieved by ITU and COP members in collaboration.
  - Legal Measures
  - Technical & Procedural Measures
  - Organizational Structures
  - Capacity Building
  - International Cooperation
- It is designed to transform the COP Guidelines into concrete activities by leveraging the active support provided by COP partners.





### **COP Guidelines**

ITU has worked with some COP partners to develop the first set of guidelines for different stakeholders: <u>Available in the six UN</u> <u>languages (+ more)</u>







## Updated version of the Guidelines for

## Industry



## Structure

The document is composed of two main parts:

1. Industry Checklist

2. Online Case Studies





## **ITU Cybersecurity Initiatives in Asia-Pacific**







## National CIRTs : First line of cyber-response

- Assessments conducted for 67 countries
- Implementation completed for 11 countries
- Implementation in progress for 4 countries
- **11** cyber drills conducted with participation of over **100** countries



**102** National CIRTs Worldwide Need to fill the gaps





## **CIRT Assessment in ABBMN Countries**

ITU carried our CIRT assessment as a part of Afghanistan Bangladesh Bhutan Maldives Nepal (ABBMN) Ministerial Forum in 2012 in five South Asian Countries with following objectives

- 1. Assist in study of the readiness assessment of current cybersecurity needs in each country
- 2. Study and suggest institutional and organizational requirements and arrangements for CIRT in each country
- 3. Develop areas of proactive and reactive response measures in each country
- 4. Develop Membership Policies for CIRT in each country
- 5. Develop Policies to coordinate with internal agencies as well as international CIRTs taking into account policies for ITU IMPACT initiative on CIRT in each country
- 6. Design specifications for hardware and software for CIRT for each country

The Ministerial Declaration along with the CIRT Assessment was published in January 2012 and is available at :

http://www.itu.int/ITU-D/asp/CMS/Docs/CIRT\_ABBMN\_Assessment.pdf







### **Child Online Protection Workshop**

## Port Vila, Vanuatu – 22-24 September 2014



- 100 participants
- Support from the Prime Minister
- Partners : CTO, IMPACT , Regulator, OGCIO
- Outcome: Guidelines on COP for Vanuatu



COP Guidelines for Brunei : 2014





## **Building a global partnership**



Capacity building initiatives, joint consultations and more.

info sharing with ITU member states





states, information sharing

Tap on expertise of globally recognized industry players and accelerate

Best practices in cybercrime legislations, joint technical assistance to member

ABIresearch

Collaboration with ABI Research – The Global Cybersecurity Index (GCI)



Collaboration with FIRST – To share best practices on computer incident response, engage in joint events, facilitate affiliation of national CIRTS of member states



Collaboration with Member States – Regional Cybersecurity Centres





### Conclusions

- While it will never be possible to completely remove all risks, drawing together an effective policies and practices, infrastructure & technology, awareness and communication can do a great deal to help.
- The international cooperation, based on a multi-stakeholder approach and the belief that every organization – whether online or mobile, educator or legislator, technical expert or industry body – has something to contribute.
- Human and institutional capacity building critical to understand and take reactive / proactive response to cyberthreats
- By working together with ITU and its partners critical international collaboration can be achieved to make the Internet a safe and secure in Nepal!



