

CONFORMITY AND INTEROPERABILITY ASSESSMENT ON A REGIONAL BASIS:

**Collaboration among Regional and Sub-regional Organizations for
Establishing common Conformity and Interoperability (C&I) Programmes
and Mutual Recognition Agreements**

Southern African Development Community (SADC)

Conformance and Interoperability (C&I) Project

DRAFT FINAL REPORT

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EXECUTIVE SUMMARY

In the framework of collaboration among regional and sub-regional organizations for establishing a common conformity and interoperability (C&I) regime and mutual recognition agreements, the ITU is carrying out conformity and interoperability assessment on a regional basis. The current study/assessment covers the 15 Southern African Development community (SADC) countries comprising Angola, Botswana, Democratic Republic of Congo (DRC), Lesotho, Malawi, Mauritius, Mozambique, Namibia, Swaziland, Tanzania, Zambia, Zimbabwe, South Africa, Seychelles, and Madagascar. The Assessment of C&I in the SADC Region was done in two stages. The first stage was accomplished by preparing and circulating a C&I Assessment Questionnaire (APPENDIX E) in collaboration between ITU Regional Africa Office and ITU Southern Africa Office and to Member administrations. The second stage was implemented by analyzing the questionnaires received from SADC Member States to complement the findings of the Missions to SADC, CRASA, ICASA and BOCRA. It is worth mentioning that Conformance and interoperability of systems within the overall framework of collaboration in the standardization of systems and networks can make a significant contribution to national development hence the need for these assessments in the regions. On the basis of the findings of the assessment there is a need for capacity building in Conformity assessment and Interoperability, assistance and guidelines for establishing appropriate C&I programmes and eventual provision of infrastructure such as test labs within the SADC region to enable the carrying out of C&I tests.

Southern Africa Development Community (SADC) countries present a significant Telecommunications market, though relatively small in the context of the world market. However, it is widely acknowledged that “the world is coming to Africa”; and that “Africa must be ready”. The growth of Telecommunications/ICT has been phenomenal - mobile revolution include mobile money transfer (mobile commerce) are just some of the examples of this growth. This growth presents opportunities (use of ICTs for social and economic development) and challenges (importation of equipment that does not comply with standards thus compromising the safety and quality of service/experience) in equal measure.

Similarly, national regulations on standards and conformity assessment in the SADC region need to keep pace with the development of new standards and global best practices; hence the need for

robust conformance and interoperability test centres to verify conformity to standards and interoperability of systems. Lishan (2006) noted that:

With regards to standards and type Approvals there is:

- *Limited understanding of key standards and how they should be applied locally;*
- *Absence of test labs due to limited technical capacities and resources;*
- *Lack of experience in using test results;*
- *Limited information sharing between countries for example between those with relatively advanced type approval regulation such as South Africa and the rest of the SADC countries; and*
- *Lack of harmonization of standards used in the region.*

These shortcomings present a real challenge and opportunity to the development and use of ICTs in SADC.

In this report, an assessment of the conformance and interoperability regime in SADC Region is presented, while being cognizant of the fact that the European regime has moved towards integration and usage of Supplier's Declaration of Conformance (SDoC) that has a bearing on the SADC market. The necessary elements that promote the Collaboration among Regional and Sub-regional Organizations for establishing a common C&I Regime and Mutual Recognition Agreements are identified. The report has also identified some of the SADC region requirements and gaps in the areas of Conformity Assessment Testing and has presented some possible and harmonized scenarios to meet the needs and interests of Member States in the Region. It has also provided some recommendations for establishing a common C&I Regime and Mutual Recognition Agreements (MRAs).

The assessment covers, among other items, the general aspects of SADC region, Regulatory framework and Institutions, Accreditation, Laboratories, Certification bodies and Marking. Proposals and recommendations for establishing a common C&I regime and MRAs for SADC are part of this report accordingly.

1.0 INTRODUCTION

1.1 Background

This report has been developed out of the fact that there have been concerns by developing countries especially from African Region on the need for global support to address the conformance and interoperability (C&I) problem. The African group believes that the lack of C&I of ICT equipment is the fundamental reason for poor quality of service delivery to users, poor performance on ICT development indicators and for issues of safety relating to the use of ICT equipment. They also believe that lack of C&I is partly due to the lack of or inadequate regulatory framework, capacity and infrastructure.

The resulting WTSA-12 Resolution 76 (studies related to conformance and interoperability testing, assistance to developing countries, and a possible future ITU Mark programme) has received a lot of attention. In particular, the World Telecommunication Development Conference 2010 (WTDC 2010), approved the Resolution 47, gave specific recognition to Resolution 76, endorsing collaborative work with ITU-T on implementation of Resolution 76 including activities in capacity building, training, and development of guidelines in conformance and interoperability testing.

Resolution 47 also identified specific responsibilities to conduct a field study on the economic feasibility of and need for creating regional laboratories for conformance and interoperability testing thereby assisting developing countries to become self-sufficient in meeting their own needs in this important area. This is why this report has been prepared following an assessment of C&I in SADC Member states.

Resolution 177 (Guadalajara, 2010) Conformance and Interoperability, endorsed the objectives of both Resolution 76 (Johannesburg, 2008) and Resolution 47 (Rev. Hyderabad, 2010), and the recommendations endorsed by the Council at its last meetings (2009, 2010, 2011, 2012, and 2013): “that this programme of work be implemented in parallel without any delay....”

In particular, the last ITU Council 2013 reinforced ITU engagement in the implementation of the C&I Action Plan, consisted of activities to promote ICT infrastructure in developing countries. Also ITU-R, Resolution 62 of the Radiocommunication Assembly (RA-12) considered the C&I issues important to be addressed.

The collaboration between ITU and the SADC on the C&I assessment project is based on the foregoing framework and the Resolutions. This assessment project is in the framework of collaboration among regional and sub-regional organizations for establishing a common conformity and interoperability (C&I) programme and mutual recognition agreements. The ITU is carrying out conformity and interoperability assessment on a regional basis and the present study/assessment covers the 15 Southern African Development community (SADC) countries.

According to a previous investigation conducted by the Communication Regulators' Association of Southern Africa (CRASA) on *Harmonization Approach for Standards and Type Approval* (2006, January), the conclusion was the following:

“Most SADC countries are also obliged by their WTO (World Trade Organization) commitments to prevent barriers to trade. The WTO commitments require SADC countries to eliminate redundant requirements that prevent innovative IT products from reaching consumers most efficiently. Type Approval can be seen as such a barrier, if implemented in the wrong way. Type approval requirements such as in country testing, fees, and onerous procedures could create significant barriers for importers and threaten trade agreements”
(p.20)

In a broader sense, this statement is also true for conformance and interoperability requirements and the need to have them as facilitators of orderly deployment of ICTs for socio-economic development of rather than barriers in SADC. It is therefore necessary that the proposed common C&I programmes be simple, affordable, and acceptable across the whole of SADC. Further, the implementation of the recommendations of a 2006 study titled *CRASA Harmonization Approach for Standards and Type Approval* by an Independent Consultant (CRASA, 2006), had not been done out due to lack of funding; this points to the fact that the financing of C&I implementation needs sharp attention because it is a critical success factor for the project.

1.2 Objective of the Assessment

The objective was to carry out the Conformity and Interoperability Assessment on a Regional Basis. This project aimed to identify all the necessary elements and promote the Collaboration among Regional and Sub-regional Organizations for establishing a common C&I Programme and Mutual Recognition Agreements (MRAs). It also presents possible scenarios to meet the needs and interests of Member States and Regions on C&I. The Assessment covers, among other items, the general aspects of SADC region, Regulatory framework and Institutions, Accreditation, Laboratories, certification bodies and Marking; and a proposals; and recommendations for establishing common C&I programme and MRAs.

1.3 Deliverable/Outcome of Assessment

The deliverables of this assessment include the following recommendations, namely:

1. Possible scenarios for establishing Common C&I Programme and Mutual Recognition Agreements (MRAs);
2. Possible ways to facilitate the implementation of ITU Conformity and Interoperability programme
3. Programme especially in the areas of Capacity building and the Establishment of Test Centres on regional and sub-regional basis.
4. Regional or sub-regional organizations suitable to perform conformity assessment testing including the function of MRA coordination;
5. Entities that are capable of providing funding opportunities to support the establishment of testing centers in the region.

1.4 Methodology

As already mentioned, the C&I Assessment in the SADC region was done in two stages. The first stage was accomplished through:

- Preparation of C&I Assessment Questionnaire (APPENDIX E) in consultation with the ITU HQs , ITU Regional Office for Africa (ROA) and ITU Southern Africa Office;
- Study of existing documents relating to C&I, specifically:
 1. Guidelines For Developing Countries On Establishing Conformity Assessment Test Labs in Different Regions (May 2012).
 2. Feasibility study for a conformance testing center (2013)
 3. Guidelines for the development, implementation and management of Mutual Recognition Agreements (MRAs)
- Establishing high level contacts with SADC Member administrations through the ITU Regional office for Africa;
- Dispatch of Conformance and Interoperability Questionnaires, Missions to SADC ITU Member administrations and making presentations to stakeholders; and
- Face to face meetings with officials in member administrations to obtain perspectives and support for the C&I project.

The second stage of the C&I assessment was accomplished by analyzing completed questionnaires from SADC Member States to complement the findings of the Missions to SADC¹, CRASA², ICASA³ and BOCRA⁴

Since only three out of the 15 member states in the SADC sub-region to which C&I survey questionnaires were sent responded, the data available would not have been representative of the sub-region, so we also relied on perspectives of the SADC secretariat being the focal point of the coordination of all ICT programmes for all SADC Member states and on other published/ online secondary sources. Data/information gathered during the Missions to ICASA, BOCRA, CRASA provided very useful insights into the C&I situation in the SADC and have been used in arriving at the recommendations and conclusions on the approach for addressing conformance and interoperability in the SADC.

¹ Southern African Development Community

² Communication Regulators' Association of Southern Africa

³ The Independent Communications Authority of South Africa

⁴ Botswana Communications Regulatory Authority

2.0 SITUATIONAL ANALYSIS

2.1 Status of Conformity and Interoperability in SADC

The situation in SADC with regard to conformance and interoperability (C&I) can be discerned from the perspectives/views of the various stakeholders including the SADC Secretariat, CRASA and SATA⁵. As an example, CRASA explained that:

1. SADC is attractive to investors and should not be shortchanged when investments are made; and that it needs to reap maximum benefits from ICTs;
2. SADC prefers to talk to suppliers with one voice;
3. Testing lab/s is/are needed within SADC but the cost of funding the lab needs consideration and that it is expensive to have a lab in each countries;
4. Better economic value should be ensured (equipment may be in accordance with standards but economic value should also be ensured); specifically, dumping of equipment/ systems should be avoided e.g., as was the case with CDMA deployments in some countries which was two generations behind. Supplier driven capacity building should be avoided as well; see also Box 1

⁵ Southern Africa Telecommunications Association

Box 1: CRASA Perspectives on Conformance and Interoperability

CRASA is concerned with how to deal with counterfeit issues, including how the counterfeit equipment is not being picked at the import/customs entry point. According to CRASA the C&I situation can be summarized as:

1. No labs in SADC except in South Africa (ICASA labs)
2. All equipment are just coming into the region without certification (and even claims by suppliers of conformance to standards are largely false)
3. Switches would be passing through certification labs from their countries of origin/manufacture but not the user equipment
4. Substandard equipment is being passed into SADC without a means of verification of their compliance with standards leading to interoperability problems (and impairment of service quality); a lot of counterfeiting exists in the region with regard of ICT equipment
5. The cost of certification needs to be known once the regional labs are set up
6. A regional lab is preferred instead of one belonging to a particular authority in a SADC member state

In Mauritius for instance, customers were buying substandard set-top boxes (STBs) and later complained of poor broadcast service to the regulator; on investigation of the problem, it was found that the problem was with the STB but not with the signal from the broadcasters. There are old guidelines/standards that are being updated since 2007 at CRASA; one sector (telecom) has not received adequate attention except in the radio and spectrum management where a common standard has been adopted for digital terrestrial transmission (DTT) but not for others and more needs to be done.

2.2 Initiatives by SADC on Conformity and Interoperability

In recognition of the importance of conformance and interoperability to the socio-economic development of the SADC, the member states through the SADC secretariat have initiated the process of implementation of C&I infrastructure, including:

- (i) *Request to the ITU of June 11, 2013*

For assistance with C&I for the SADC region with acknowledgement of July 2, 2013 from ITU stating that: (1) SADC to liaise with ITU Southern Africa Office on modalities of assistance and subject to budget; and (2) that results of the C&I study by ITU consultants that is going on in SADC would be shared with SADC in a workshop

(ii) Digital Terrestrial Transmission migration programme

In the framework of the **Digital Terrestrial Transmission (DTT)** migration, set-top boxes (STB) will come into the region yet standards, performance of the equipment and their interoperability, though crucial, cannot be determined/ ascertained without C&I test platforms in the SADC. At the switchover to digital broadcasting, shops will sell the STBs and if there is no testing, this will result in huge problems. Therefore, there is need for test facilities to safeguard citizens socio-economically: so, how can the region ensure equipment complies to standards and that it is within the limits of performance and safety? This is through the C&I project which is very urgent.

(iii) SADC ICT Development Plans

Digital Dividend - a workshop was held in Zimbabwe and GE 06 plans finalized to capitalize on the DD 1 and DD 2 especially the DD 2; the channeling programme for DD 2 would be submitted to the JTC 4,5,6, and 7 and WP D5 of the ITU; and WRC Agenda 1 and 2. Once the channeling plan for DD1 and DD2 are finalized, specifications for STBs into the African region can be fully comprehended and incorporated into test suites to ensure conformance to ITU recommendations for the STBs.

SADC strategy is to use DD -2 for development of cost effective broadband in the rural areas. This strategy will lead to the bringing in of new equipment and the imperative to test both network and user equipment to ensure an orderly development of the ICTs and their ultimate contribution to socio-economic development in region. This is crucial because unscrupulous equipment suppliers would be keen to exploit standards "vacuum" unless these are filled through C&I intervention.

(iv) SADC Ministerial Decision

In recognition of the urgency of the C&I issue, SADC Ministers have already noted the importance of C&I and made an important Decision (Box 2).

BOX 2 Ministerial Decision on SADC C&I Test Centre

SADC ministers, in recognition of the importance of the C&I, noted (3.3.7.1) and made important decision (Decision 14).

3.3.7 Establishment of the SADC Conformity and Interoperability (C&I) Test Centre

3.3.7.1 Ministers noted that the ITU in accordance with the Resolutions 76 (ITU-T), 47 (ITU-D) and 177 (PP-10) is rolling out international telecommunication test centres in developing countries. Under the programme, 5 C&I Test Centres are to be established in Africa on a regional basis. The East African Community (EAC) has already benefitted from this ITU programme, with the establishment of the C&I Test Centre in one of its Member States now at advanced stage. In order to benefit from the programme, SADC needs to coordinate its activities in this area and identify a regional host country and develop an implementation roadmap, before approaching ITU for expertise and funding.

Decision 14:

3.3.7.2 Ministers directed the SADC Secretariat to undertake regional consultations and to ensure that the region benefits from this ITU programme.

(v) CRASA Initiatives on Conformity and Interoperability

There is a CRASA committee that deals with standards but the concern is that most countries tend to import from Europe and that SADC countries only monitor conformance to standards. So, besides MRAs, there should be agreement on how the regional lab should work; "we need to study a regional lab and see how it has worked in order to appreciate the operations and challenges" (CRASA).

During the assessment of C&I, BOCRA (a member of CRASA) reiterated that:

- (i) C&I implementation is an issue of great interest and importance to BOCRA;
- (ii) One of the critical areas for C&I is the terminal devices - consumer devices whose conformity and interoperability requirements and assessment are inadequately (or not at all) developed.

3.0 FINDINGS

The findings of the C&I assessment in the SADC region are as follows:

3.1 Capacity for C&I on in SADC

A close examination of the C&I capacity in the SADC region revealed that there was:

- no training on migration among SADC member states
- no C&I test facilities in SADC member states
- no training for/or trained trainers (TOTs) on C&I within SADC
- no C&I training for consumers of ICTs

"Therefore, SADC very urgently needs complete C&I capacity building comprising: (1) basic training on C&I; (2) training of trainers for C&I drawn from SADC Member states; and (3) C&I test labs within SADC" (SADC Telecom Program Officer). Further, from the discussions with SADC Telecommunications/ICT officials it emerged that:

- (i) There appeared to be inadequate dissemination of information regarding the ITU test centre in Tanzania; this is needed so that the stakeholders in the SADC region are fully updated on the status and scope of the lab;
- (ii) SADC views C&I within the overall context of digital migration, implementation of the DD programme and standards sensitization in the region
- (iii) A validation workshop for the C&I assessment results and training courses should draw participants from ministries in charge of ICT, RECs (SADC), regulators (CRASA membership), operators (SATA membership); and consumer organizations – including staffs that deal with consumer issues in the national regulatory authorities and other consumer organization representatives.

3.2 Perspectives on Training and Centres of Excellence in SADC

SADC prefers to have training in Southern Africa centres excellence within SADC, including in those that are accredited by SATA and those accredited by the ITU such as University of Malawi and Mauritius. Consequently, the SADC proposals on training are:

- (i) To conduct C&I training and TOT course for C&I in SADC

- (ii) To conduct a validation workshop back to back with the C&I training
- (iii) To prepare and circulate the TOR for expression of interest to host the C&I test centres in SADC
- (iv) Since the Republic of South Africa has high level bureau of standards and that ITU needs to consider training them (and other SADC member state participants) under the TOT programme to enable them take over as trainers for C&I within the region during the active operation of the C&I test centre project.
- (v) Capacity building targeting the right people within SADC is required and should be provided; specifically the people who are involved in data collection for the C&I assessment survey be sponsored to participate in the training - these participants would later be the C&I champions who will accelerate the realization of the project
- (vi) The training should be conducted and documentations provided in the three official SADC languages
- (vii) Video recording of trainings should be done to enable those who would not be able to attend trainings to benefit

3.3 Assistance required by SADC on Conformance and Interoperability Implementation

The following SADC C&I priority issues and requests that need urgent attention:

- (i) Validation workshop - venue has not yet been agreed upon and support for participants to attend the workshop is requested from ITU by SADC;
- (ii) SADC requests a C&I training to be conducted back to back with the C&I validation workshop;
- (iii) Training of trainers for C&I in SADC is required; the trained trainers will then sustain the momentum of the project in SADC;
- (iv) SADC requests that the trainings on C&I and related matters be conducted within SADC since there exist ITU centres of excellence in the region; this would reduce costs of travel to the participants;
- (v) SADC very urgently requires the implementation of the C&I given the migration to digital broadcasting ITU deadline (June 2015) and the fact that SADC does not have C&I test centre to handle the influx of both network and user equipment arising from the migration

3.4 Immediate Requirement from SADC

In summary, and given the urgency of the C&I project, the *venue for the C&I validation workshop, basic training on C&I within SADC region, Training of Trainers for the SADC region on C&I, and ITU support for these activities* were immediate requirements from SADC and needed to be discussed and finalized with a view to their implementation in order to move the C&I programme forward.

Capacity building targeting the right people within SADC particularly those involved in the collection of data on C&I; and from this group, a training of trainers (TOT) programme should be conducted for a suitable number of participants. Further, part of capacity building and testing in the C&I project should include those that deal with consumer issues including safety consideration and consumer experience.

4.0 FINDINGS ON THE SURVEY

4.1 General aspects of the Region

The Southern African region has an estimated population of 283,659,000, a gross domestic product of USD 655,142,000,000 and land size of 9,882,959km².

South Africa, the biggest economy in the sub-region reported a gross domestic product of 408,236.8 million US. South Africa which is also the most populated country reported an estimated population of 50,586,757 and a land size of 1,219,090km². South Africa reported a literacy rate of 88.7% for persons above 15 years.

Namibia and Botswana are the other two countries to provide responses to our questionnaire. Namibia has a total area of 824,292 km², an estimated population of 2,113,077 and a GDP of USD 12,823,000,000. Namibia also reported a literacy rate of 89%. Botswana has a total area of 581,730 km², an estimated population of 2,101,715 and a GDP of USD 17.33 billion.

The value of exports in the sub-region amounts to USD 243,689,000,000 and that of imports is USD 254,470,000,000. South Africa accounts for almost half of the exports with a value of USD 117,681,128,328.6 and an import value for USD 120,105,761,232.70.

Botswana reported the highest penetration rate of 153 per cent among the three respondents for mobile services. They also reported a penetration rate of 48 per cent for Internet and have three major telecommunications service providers.

South Africa, the biggest telecommunications market in the sub-region has a penetration of 128.7 per cent for mobile services and 9.3 per cent for Internet services. It has three mobile network operators and two fixed line operators.

4.2 Regulatory framework and Institutions (per country)

South Africa and Botswana have a regulatory framework and regulation which establishes technical requirements for products and services to be legally imported and deployed in the marketplace. Namibia's Type Approval Regulations is however still in draft form. Regulations were published in the Government Gazette No. 31 May 2013 for public comments. Tanzania also has a regulatory framework in place since 2012.

South Africa is the only country which has adopted comprehensive conformity assessment schemes for market entry. These include certification through testing in labs and labeling. Botswana relies on documents from test labs outside the country and also uses proxies such as EC, FCC and other for conformity assessment. SABS Product Mark Scheme is based on ISO/IEC 17025, which outlines the general requirements for the competence of testing and calibration laboratories.

All the respondents (South Africa, Botswana and Namibia) have compulsory legislations and regulations dealing with ICT and telecom products. With the exception of South Africa, all the other countries are having challenges with enforcement due to capacity constraints.

Though none of the respondents have MRAs, South Africa will however accept test reports that are issued by an Accredited Test Laboratory (ATL), where ATL refers to any laboratory accredited by its own national accreditation body, the South African National Accreditation System (SANAS) and/or other recognized accreditation body according to ISO/IEC 17025 requirements. Regulations in Botswana allow **Approval by Reference**, but no delegation has been done to any other body.

South Africa and Botswana have a national standards system and national SDOs. There was no response on this issue from Namibia. The all the respondents are committed, wherever possible, to encourage technical committees to adopt international or regional standards.

4.3 Accreditation

South Africa is the only country with an accreditation body - South African National Accreditation System (SANAS). SANAS covers ICT and Telecom products, Electrical Equipment and other unrelated scopes.

4.4 Laboratories

South Africa is the only country with accredited test labs. These include Telkom, South Africa Bureau of Standards (SABS), Gerotek, Test Africa and ITC Laboratories which are accredited by SANAS. Tanzania in consultation with ITU, embarked on a plan to establish a Type Approval Laboratory Project by initiating consultancy procurement processes to conduct the feasibility study for the project. The study proposes a four phased approach and each phase will grow in terms of equipment and human resources requirements. Tanzania Communications Regulatory Authority (TCRA), the ICT sector regulator has plans to start the first phase of the project using own sources of funding to cater for part of the required finances by establishing a mini-type approval laboratory within its premises. This lab will be for conformance assessment tests for DVB-T2 set top boxes and mobile terminals.

5.0 PROPOSED ROADMAP FOR CONFORMITY AND INTEROPERABILITY PROGRAMME INCLUDING MRAs

5.1 Implementation of conformity and Interoperability project process

In order to move the C&I project forward we propose the following in line with SADC expectations:

- (i) Have a validation workshop for the survey results and a C&I training back-to-back with the workshop for about six days in total.
- (ii) SADC secretariat needs to identify suitable locations for the C&I test centres e.g. Invite request for expression of interest (RFI) to interested member states to host test centres/labs
- (iii) evaluation of the RFI and selection of the countries to host the various aspects of C&I develop the test centres

(iv)conduct capacity building in parallel with the other stages of the C&I development; including standards sensitization

Further suggestions by SADC Secretariat on the proposed C&I workshop/Training are presented in Box 3.

BOX 3: Suggestion from SADC on the Proposed C&I Workshop

There is need to urgently work on a framework for a very successful C&I workshop:-

1. ITU supports the C&I workshop
2. ITU requests a country to host the workshop e.g., accommodate the delegates to the validation workshop and for the C&I training
3. ITU provides technical support in the form of training facilitators (for both basic training and for the TOT while member states cater for the air tickets for the participants
4. Training on EMC/I standards, conformance and test centres are also needed in SADC - including coverage on the complete suite of functionality for the test centres need to be worked out and agreed on by the SADC membership, also with reference to the various documents on the C&I subject including the ITU feasibility report and MRAs document

5.2 Phased implementation of Conformity and Interoperability project

In the long term, the C&I capacity development is proposed to be implemented in a phased approach. It is envisaged that four phases would complete the restructuring of the C&I type approval regulatory regime, Table 1 lists graphically the phased in approach to self-declaration.

Table 1. C&I Roadmap Self-declaration approach

	Year 1	Year 2	Year 3	Year 4
Harmonization of procedures and criteria for type approval including forms, fees	X	X	X	X
Publications of information on type approvals and standards	X	X	X	X
Setting up of Harmonized Standards		X		
Acceptance of International Test Reports		X	X	
Rewriting of regulations and penalties		X		
Technical Construction Files to be introduced			X	X
Market Surveillance			X	X
Acceptance of Self Declaration				X

Source: Adapted from *CRASA Harmonization Approach for Standards and Type Approval (2006, January)* Report

5.3 Expected Benefits of Common Conformity and Interoperability Programme in SADC

SADC believes that the C&I programme can benefit its membership if it addresses a number of questions (Box 4).

Box 4: Some of the Questions to be addressed by the C&I Programme

- (i) What will the regional lab do for SADC countries? i.e., to what extent can a regional lab help individual countries? And what challenges do countries have in using regional labs?
- (ii) How do we (SADC) deal with obsolete technology? Extension of capacity building to cover operators (not only policy makers and regulators) in NGN technologies and other areas/technologies; otherwise the e-waste issues will be a big problem.
- (iii) How will the test labs address safety issues related to the ICT equipment as the equipment ages?
- (iv) How would the claims of the suppliers regarding conformance be tested/verified?
- (v) With regard to exposure to radiation, some of the questions to be answered in the framework of C&I are:
 - (1) How many countries have human exposure standards, regulations and measurements?
 - (2) Are there standards for both public and occupational exposures - there should be measures against these standards and appropriate safety regimes implemented?

6.0 WAY FORWARD FOR ESTABLISHING COMMON CONFORMITY AND INTEROPERABILITY REGIME AND MUTUAL RECOGNITION AGREEMENTS

A two phase approach is recommended for establishing a common C&I regime including MRAs.

6.1 Short-term Approach

In the short-term, workshops should be organized for the SADC region to aid in C&I regulatory frameworks and regulations. There should also be workshops for test reports analysis, development of technical requirements for C&I and the development of MRAs regime among SADC member countries. Capacity building workshops with practical exposure can also be held

for relevant personnel in the sub-region. ITU in collaboration with SADC secretariat should initiate this process.

6.2 Medium-term Approach

In the medium term, SADC member countries should harmonize C&I programmes or develop MRAs to better manage the process and to facilitate the process of setting up a test lab for the sub-region. Regulators and other stakeholders in the sub region should persuade their governments to prioritize the setting up of a test lab by clearly highlighting its benefits. They could also consider the setting up of a test lab through a public-private partnership.

6.3 Possible Scenarios for establishing a Conformity and Interoperability project Regime

6.3.1 Implementation of C&I Regimes

The following scenarios are envisaged (Table 2):

Table 2. C&I Implementation Scenarios

Scenario	Regulatory	Accreditation	Laboratories	Certification Bodies
Single Country	all structure must be selected and adopted by a country	Depending on the obligation for type approval or Accreditation of Certification Bodies or others	Depending on the obligation for type approval	Each case is unique
Bilateral	Harmonization	Yes, at list in one country	Yes, at list in one country	Yes, at list in one country
Unified Regime	1 Steering Committee	Any country	Any country	Any country

The investment in regulatory and Infrastructure for C&I shall be considered in all scenarios. The option to adopt Mutual Recognition Agreements allows the suppression of redundant activities allowing maximizing efficiency in the overall conformance assessment process.

A. Single country

The implementation of C&I Programmes in a single country must take into consideration the following aspects:

1. Definition of the C&I regimes in place (Certification, Supplier's Declaration of Conformity - SDoC, etc.): operational processes, procedures, requirements and organizational structure which is suitable with the country's needs.

2. Development/ review of the regulatory framework, the implementation procedure and roadmap of C&I programmes that shall cover the following subjects:
 - a. Telecommunication Act provisions: placing products in the market; institutions: rights and responsibilities; identification of approved products;
 - b. Define methods to calculate the fee of Type Approval process, including issue and renewal of certification.
 - c. Law enforcement and surveillance: trail procedures and safeguards; Post-market surveillance; Sanctioning and other legal provisions and procedures.
 - d. Investigation of possibilities to use the C&I programme for combating the counterfeit ICT equipment on the market.
 - e. Coordination of responsibilities with other national regulatory agencies, as the Quality and Metrology institute (if any).

3. Definition and publication of the reference standards, interface specifications, essential requirements (EMC, Safety, SAR, etc.) for type approval of ICT equipment;
 - a. Define a list of national and international standards which should cover the basic requirements (health and safety, EMC, protocols, interfaces and so on), and additional standards which might be applicable.
 - b. Make the ICT market survey on the equipment is suitable for type approval (certification). Develop the list of equipment, under the type approval system, with references to the relevant national and international standards, publicizing the

technical requirements and test procedures. Define the procedure of Harmonized System Codes (HS Code) assignment.

4. Accreditation, recognition and acceptance of laboratories and qualified professional;
 - a. Designation of Accreditation and Certification Bodies; Define the procedure of how Test Labs (TL) should be recognized.
 - b. Policy for developing quality of the national laboratories; international standards certification (ISO 17025, ISO Guide 65, etc.).
 - c. Definition of how to become accredited by International accreditation bodies (ILAC, IAF, APLAC, IECEE...) in the relevant scope.
 - d. Define the procedure to accept the Self-Declaration and testing results which were issued by Testing Laboratories (TL) which are recognized.

5. Prevision and use of Mutual Recognition Agreement (MRA): harmonized standards; test specifications and reports.

6. Specify the budget for establishing the conformity assessment test lab. The use of the ITU publications are good reference: a) ITU Feasibility Study on Testing Laboratories; and b) Establishing Conformity Assessment Test Labs in Different Regions.

7. Training needs for the staff to review testing reports based on the requirements of the C&I regime and issue of the Certificate of Conformity.

B. Bilateral Agreements

The implementation of C&I Programmes in bilateral fashion must take into consideration the following aspects:

1. Harmonization of C&I regimes in place according to the product's scope (mobile, network, etc.).

- a. Agreement on the publication of common reference standards, interface specifications, essential requirements (EMC, Safety, SAR, etc.) for type approval of ICT equipment.
2. Rules for recognition of the accreditation of laboratories, certification bodies and qualified professional.
3. Approval of Mutual Recognition Agreement (MRA) between participants.
4. Usage of the ITU publications as reference, e.g. Guidelines on Mutual Recognition Agreements (MRA).
5. Training needs for the staff on C&I regimes and MRA procedures.

C. Unified Regime

A unified Regime promotes integration. The difference with Bilateral Agreements is the relevance of a Steering Committee created with sufficient power to rule among the participant countries in the C&I aspects.

6.3.2 Mutual Recognition Agreements simulation

Considering the analysis of data collection in SADC region (general, regulatory, Accreditation, Laboratories, Certification Bodies), this section will describe the three possible scenarios taking as example the countries: Botswana, Namibia and South Africa.

Scenario A. Each country shall look for its own conformance assessment scheme.

Scenario B. South Africa has already well implemented a C&I infrastructure. And both Botswana and Namibia are improving theirs. So the following paths might be identified:

B.1 South Africa can establish partnership with Botswana or Namibia where they can benefit from accessing resources (labs, certification bodies, etc.) where they lack. South Africa institutions will perceive gains of scale that will help to maintain their laboratories.

B.2 Botswana and Namibia should look for commonalities and differences, and afterwards they can propose partnership in investments that will fill the gaps.

Scenario C. A General set of regulation shall be approved by all participants/ countries; and a Steering Committee shall rule over (ensure) the common interests of C&I.

C.1 South Africa as the main hub for the conformance assessment of ICT products: Again, South Africa institutions will perceive gains of scale that will help to maintain their laboratories but shall be well aware of national requirements in Botswana and Namibia and be able to run the test according with their particularities.

C.2 Botswana and Namibia should look for commonalities and differences, and afterwards they can propose a collaboration that will fill their gaps and complement it with South Africa capabilities.

6.4 Procedures for Establishing a Conformity Assessment Regime

6.4.1 Background

This part of the report is indicating best practices for procedures and related steps for establishing a conformity assessment regime at national/regional level. Such procedures/steps may serve as general guidelines to be then deeply defined for assisting developing countries for the introduction of ICT products in the national/regional market and for increasing reliability and interoperability of equipment manufactured by different vendors.

Typical procedures and best practices used worldwide are herewith recalled. Any concerned Administration may want to use the following procedures as guidelines and tailoring/adapting them to the existing national regulation and rules. The section 6.4.2 presents definitions of terms used in this part of the report.

Procedures for establishing a Conformity Assessment regime, described in section 6.4.3, may include the following :

A. Query for new products to be homologated

B. Issuing and/or validating a Certificate of Conformity

C. Issue of the Homologation (or acceptance)

D. Import procedures for testing proposals

E. Reference Standards for conformity assessment

F. Recognized Laboratories and Test Reports

G. Marking

H. Monitoring, Enforcement, and Sanctions and Post-Market Surveillance

Practical use of these procedures is presented in section 6.4.4, through examples showing the interactions between the concerned entities/bodies existing in a conformity assessment regime for ICT products.

6.4.2 Definitions of terms used in this section

Applicant - is the manufacturer or representative interested in selling the product in the concerned market (country/region).

Certification - is the type approval process in which a Certification Body states, through the Certificate of Conformity, that a product fulfills the specified requirements.

Certificate of Conformity - is a statement of conformity issued by 3rd party (Certification Body).

Declaration of Conformity - is a statement of conformity issued by a 1st party or a 2nd party.

Conformity Assessment - The process for demonstrating that a product meets the standards, regulations and other specifications.

Homologation - is the official act issued by the Regulatory Authority that empowers the applicant to sell the ICT product in the concerned market.

First party - supplier of a product.

Second party - the purchaser of a product.

Third party - a person or body that is independent of the organization that provides the product, and of the user interested in the product.

Type Approval –certifying that a product meets certain requirement for its type e.g. cell phones operating in a certain frequency band. Type approval is granted to a product that meets a minimum set of regulatory, technical and safety requirements by a competent body.

6.4.3 Procedures for establishing a Conformity Assessment Regime

A. Query for new products to be homologated

The first step of the procedures is the submission of a formal “application form” from the vendor, manufacturer or representative requesting for issuing the homologation.

The application form can request/include the following documents:

- Identification of the manufacturer or representative including the name, address, references for official communication and any other relevant information;
- A description of the ICT equipment together with the model number, software version, manufacturer identification and factory site. Product’s description of interfaces and protocols that are subject to conformance testing (e.g. ISDN, E1, STM, etc.). The operating frequency range for radio equipment with associated details, the maximum EIRP and modulation type;
- Proof of chargeable fees payment for issuing the homologation certificate;
- Additional technical information explaining the equipment purposes. Such information can be provided by brochure, operational instructions, description of the equipment by diagrams illustrating functional units and their connections. For example, a drawing showing the methods of connection to the mobile phone, its interfaces and connections with other equipment;
- High quality colored pictures of the equipment that allows clearly identification of the product: one picture from the internal circuits and another from the external view may be required;
- Certificate of Conformity issued by a recognized Certification Body or, if Declaration of Conformity is accepted, the Declaration of conformity issued by the manufacturer or representative (details in B section);
- The original, or a certified copy, of the laboratory test reports, translated to the local language or English, pertaining to the testing of transmission and interface parameters,

electrical safety and electromagnetic compatibility issued by an accredited test laboratory (details in F);

- A copy of the user's manual. Local official language may be required in case the equipment is intended for use by the general public for purposes of accessing ICT services (e.g. mobile terminals).

If the application is incomplete additional technical details or clarifications may be requested.

Example of practical case:

The Regulatory Authority will reject the application request and turndown the file if the supplier fails to respond within thirty (30) days from the date of Regulatory Authority's notice for request of information

B. Issuing and/or validating a Certificate of Conformity

The Certificate of Conformity is a statement of conformity issued by an independent organization referred to as Certification Body.

The Regulatory Authority may want to rule over the responsible to issue the Certification of Conformity. For instance, the certificate of conformity may be accepted if issued by:

- The Regulatory Authority;
- A Certification Body accredited under the normative ISO 17021 (Conformity assessment - Requirements for bodies providing audit and certification of management systems);
- A Certification Body designated by the Regulatory Authority;

The Declaration of Conformity is an option that may be explored, for any or specific equipment. For instance, when there is no laboratory available to run the tests in the country/region, or when there is urgent need to introduce a new product in the market. Also, the Declaration of Conformity is a good option for specialized ICT products used for professional applications. Other example would be discontinued equipment with low demand. The Regulatory Authority can also play the role of the Certification Body, executing the certification activities together with the homologation procedures.

C. Issue of the Homologation (or Acceptance)

When a product submitted to conformance assessment testing completes the document verification phase and proved its compliance, the Regulatory Authority may issue the Homologation act and enter a record in the national list of type approved equipment.

A unique number code identifying the conformance assessment procedure may be associated to a particular product that was accepted by the Regulatory Authority.

D. Import procedures for testing proposals

If it is intended to perform local testing, the Customs office must be aware and have procedures implemented that allow for prompt issuance of an import license to the equipment samples.

E. Reference Standards for conformity assessment

The Regulatory Authority (or Ministry) has the duty of issuing the conformity assessment rules and regulations regarding the reference standards and technical requirements which have to be respected for allowing the new product to be homologated

- The rules shall prescribe the procedures and requirements necessary for directing the conformity assessment process, to which procedures all stakeholders (certification bodies, laboratories, manufacturers and representatives) are required to adhere;
- The regulations shall specify the minimum requirements to which the products must conform and may define the procedures necessary for performing of tests;

The Reference Standards may be based on the following sequence:

- International technical standards;
- Regulations applicable to the product in other countries or regions;
- Regulations issued by the Regulatory Authority for similar products; or
- Manufacturer specifications.

Due to the variety of ICT products and applications, it is a common practice to segment them into different classifications. It allows addressing different requirements according to the complexity of the equipment and the environment in which it will be used. An example of “Equipment Classification” is presented below:

- **Users' equipment:** are equipment intended for use by the general public for purposes of accessing ICT services;
- **Radio and Telecommunication Terminal Equipment (RTTE):** means the equipment not covered by the previous definition but which make use of the electromagnetic spectrum for the transmission of signals, which equipment includes radio transmitters/receivers, antennas and those products characterized in specific regulations;
- **Network equipment:** any products not contained in the previous definitions that are generally, but not limited to, used in the core of networks and that require standards to guarantee interoperability and reliability of ICT networks. Essential requirements such as Electromagnetic Compatibility (EMC) and Safety must also be assured.

Table 3. Example of Reference Standards and Products:

Category	PRODUCT	STANDARD	TECHNICAL REQUIREMENT
User`s equipment	Mobile	3GPP	Power; frequency stability, frequency in-band emission.
	Landline phone	IEC	Electrical, sound pressure, acoustic chock protection
	PABX	-ITU-T Rec. G.711: Pulse code modulation (PCM) of voice frequencies - ITU-T Rec. Q.921: ISDN user-network interface – Data link layer specification	Protocols
	Charge and Power Adapter	ITU-T Rec. L.1000	Power, energy efficiency, eco-environment specifications
	Personal Area Communication	National Frequency Allocation	Gain, transmission power, bandwidth, frequency stability.
	Residential Optical Unit	ITU-T G.984	Power; frequency stability, frequency in-band emission, SAR limits.
	UTP Cable	ISO/IEC 11801	Return Loss, FEXT, NEXT, bandwidth
	RTTE	Mobile-Broadband Base Station	ETSI
Antenna		ETSI	Radiation Diagram, Gain, VSWR.
Broadcast Transmitter		ETSI	Gain, transmission power, frequency width.
Earth Station Equipment / VSAT		ETSI	Gain, transmission power, bandwidth.
Network equipment	Transmission equipment	ITU-T Rec. G.707	Protocols
	Network Switches and Routers.	MPLS - G.8121 Ethernet - G.8021 IPTV - H.62X	Protocols
	Cables	ISO/IEC 11801	Return Loss, FEXT, NEXT, bandwidth
	IPTV	ITU-T Rec.	See Standard
Electromagnetic Compatibility	All equipment	ITU-T Rec. K.48	Radiated spurious emission, conducted spurious emission, resistibility
Safety	All equipment	ITU-T Rec. K.21	Electrical shock protection, fire protection, overcurrent protection

F. Recognized Laboratories and Test Reports

The tests to which the product sample is submitted may be performed by a third-party (independent) accredited laboratory among those accredited by and Accreditation body or

recognized one through a Mutual Recognition Agreement. (More information about accredited laboratories available on the [Guidelines on Establishing Conformity Assessment Test Labs](#))

The test report is the document reporting about the test results and the compliance of the equipment under testing against the reference standards.

Example of practical case

About qualified Laboratories: If no accredited laboratory is available in the country/region, priorities may be given to available solutions, as follows:

- 1. National Third Party Laboratories accredited (ISO 17025) and/or foreign laboratories recognized by Mutual Recognition Agreements;*
- 2. Third Party Laboratories evaluated by the Regulatory Authority;*
- 3. Laboratories which are not Third Party, evaluated by the Regulatory Authority;*
- 4. Foreign laboratories accredited by an organization member of the International Laboratory Accreditation Cooperation (ILAC).*

G. Marking

The compliance to the type approval requirements may be noted and identified through a unique Homologation number or, in some cases, through the identification of the standards to which the product is compliant may be required.

H. Monitoring, Enforcement, Sanctions and Post-Market Surveillance

Monitoring activities and random site visits may occur periodically at distribution points (stores, borders, etc.) to check if products are compliant with the conditions that granted the issuance of the homologation. Violators may be subject to the following sanctions, which may be applied separately or in combination:

- warning;
- fine;
- prosecutions;
- suspension or withdrawal of the homologation;
- suspension or withdrawal of the designation (in case of designated Certification Bodies).

Examples of practical case.

A person who sells or installs any communications equipment or facilities without first obtaining the Regulatory Authority's homologation commits an offence and on conviction, is liable to a fine not exceeding \$ 50,000.00 or to imprisonment for a term not exceeding 1* year or to both such fine and imprisonment.*

Notwithstanding the previous provisions, a licensee who installs or sells any communications equipment or facilities without first obtaining the Regulatory Authority's homologation is liable to pay a fine in such amount as determined by the Regulatory Authority.

** Indicative values only*

6.4.4 Conformity Assessment workflow

The following flowchart (Figure 1) presents an example of interactions that may exist among the entities participating in a conformity assessment process that uses certification mechanism:

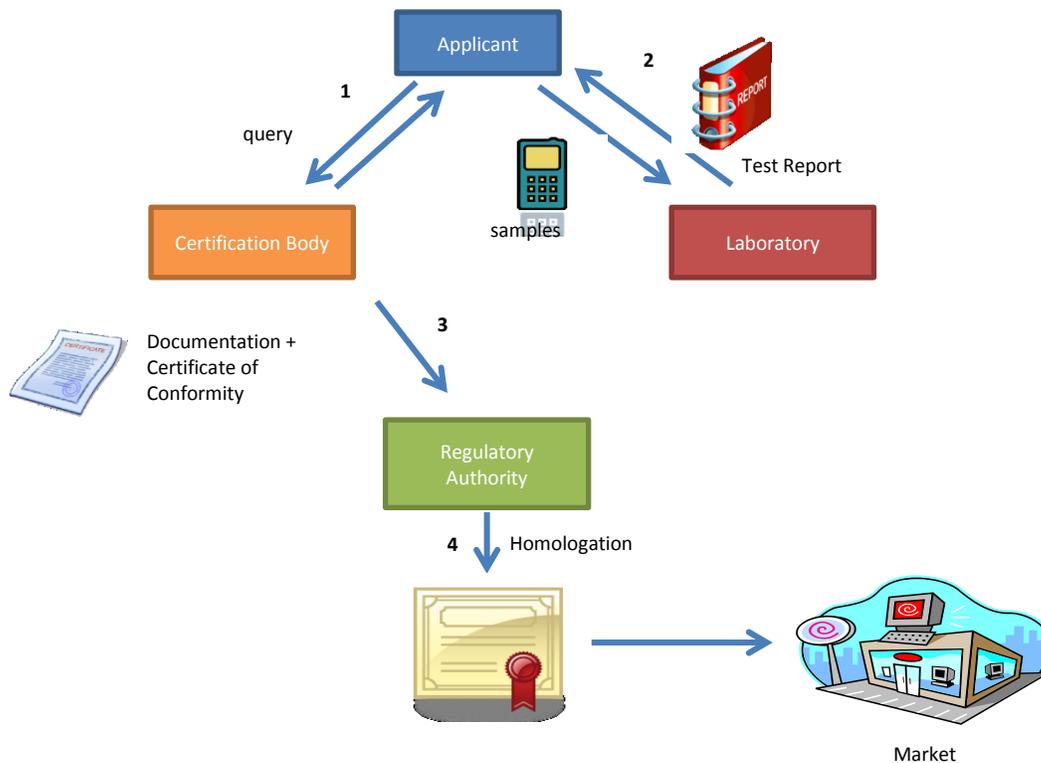


Figure 1. Interactions among Entities in Conformity Assessment Process (Certification Mechanism)

- 1) In order to initiate the process, the first step for the applicant is getting in contact with the Certification Body, who acts on behalf of the Regulatory Authority on type approval matters, that has the responsibility to provide all information concerning the certification process, including time and costs estimation, rules and regulations in force, and so on (see description details on procedures A, D and E)
 - 1.1 The Applicant must present the Technical Documentation that will be analyzed/noted by the Certification Body to properly characterize the product.
 - 1.2 The Certification Body indicates to the applicant standards, procedures to select samples, information about the tests suits, and a commercial proposal.
 - 1.3 If the Applicant wants to proceed with the homologation process, the Applicant must remain in contact with the Certification Body for conducting further services that involve management of the required documents and, mainly, an impartial analysis of the conformance of the product to reference standards and rules. The decision must be strictly based on the test reports.
- 2) Testing the product (procedures F for laboratories)
 - 2.1 The Certification Body indicates the qualified laboratories able to perform the tests. If there is more than one laboratory available, the applicant may be free to choose among them.
 - 2.2 Sampling: the sample to be tested must be collected from the manufacturer's production line, representing the same product that will be available to consumers. The Certification Body may be responsible for collecting the sample or, optionally, if the manufacturing process to produce such product has obtained a certificate of quality system (e.g. ISO 9001) the Applicant himself can collect the sample.
 - 2.3 The Applicant may continue with the operational procedures (as transportation and importation) in order to deliver the sample to the laboratory facilities.
 - 2.4 After the test procedures, the Laboratory will issue the Test Report containing the results. The analysis of the test results and related conclusion if the product is conforming to the reference standards is solely the responsibility of the Certification Body.

3) Certification (procedures B and G)

3.1 With all required documentation available, the Certification body, based strictly on the test results, certifies if the product is compliant with the reference standards or not.

3.2 If the product is approved, the Certification Body issues the Certificate of Conformity.

3.3 The Certificate of Conformity must contain the identification of the manufacturer or representative including the name and address, a description of the ICT equipment together with the model number, software version and related release, manufacturer identification and factory site. Product's description of interfaces and protocols that are subject to conformance testing (e.g. ISDN, E1, STM, etc.). The operating frequency range for radio equipment with associated details, the maximum effective isotropic radiated power (EIRP), and modulation type should be also indicated.

3.4 The Certification Body must be informed about any changes to the product that may have affected the conditions that granted the certification. The Certification Body must assess if the compliance can no longer be guaranteed and, depending on the changes (e.g. new software release reviewing protocols which may have affected interoperability), may require additional or repetition of tests.

3.5 All documents may be submitted to the Regulatory Authority.

4) Homologation (procedures C and H)

4.1 The Regulatory Authority records and executes a final check and finally issues the homologation act.

4.2 The product is then authorized to market.

4.3 The Regulatory Authority may proceed with monitoring and enforcement procedures.

Another example of interactions that may exist among the entities participating in the conformity assessment process is shown in Figure 2.. Compared with the previous example, here the Certification Body is responsible for the first contact and issuing of the Certification of

Conformity. However, the Regulatory Authority has more control, systematically reviewing the documentation for each application before homologating.

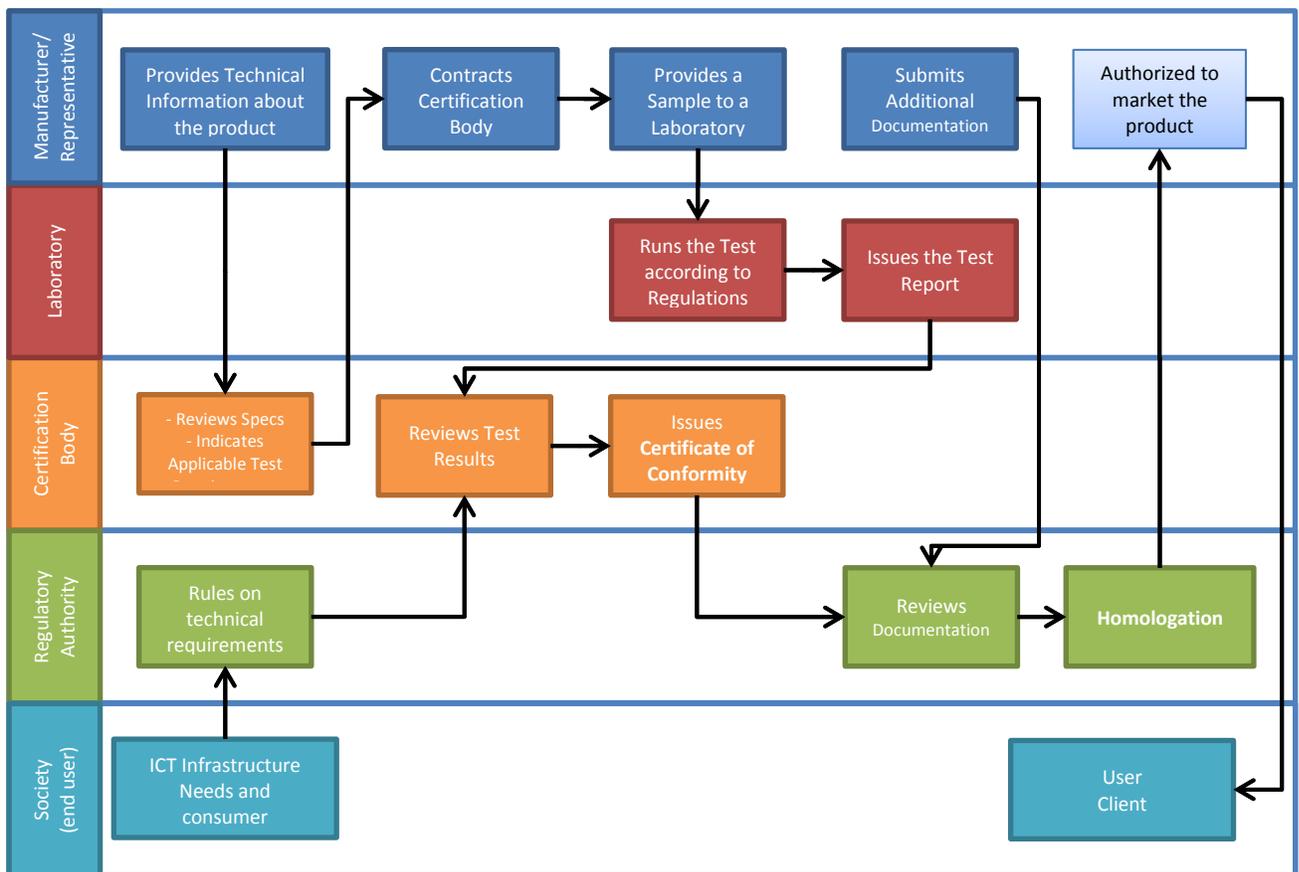


Figure 2. Interactions among Entities in Conformity Assessment Process (Regulatory Authority with more Control)

7.0 CRITERIA FOR SELECTING COUNTRIES TO ESTABLISH REGIONAL TEST CENTRES

7.1 National Government's Commitment

Countries with firm commitment from the national government to set up a test lab for conformity assessment and interoperability testing will be an ideal candidate for hosting a test lab in the sub-region. This criterion should be the most important in selecting a country to establish a regional test centre. A government committed in setting up a test lab will be prepared to commit funds or look for funds to set up the test lab since it understands the importance of ensuring that conformity assessment and interoperability testing is conducted for all equipment entering the country or sub-region. Such a government will also be prepared in supporting the test lab operationally and to help build the capacity of the human resources for the test lab.

7.2 Technical and Financial Capacity

Technical and financial capacity should be the second most important for selecting a country to establish regional test centres. A country with the technical capacity in terms of human resources and the financial capacity to set up and operate a test lab will be able to do so with less challenge. The country will also be able to set up the test lab within a relatively shorter time frame.

7.3 Demography and Market Size

Demography and market size is a very important criterion to consider in selection of a country to establish regional test centres. The literacy level and the size of the market will make the country attractive for a test lab either by the private sector alone or through a public-private partnership. A high level of literacy will make capacity building relatively easier for a potential investor or development agency in a test lab. A big market size will make a country attractive enough for a test lab.

7.4 Political, Economic and Legal Stability

Political, economic and legal stability should be the fourth criterion for selecting a country to establish regional test centres. A country with political, economic and legal stability provides some certainty and less risk for an investor or development agencies who will want to be involved in the setting up of a test lab.

8.0 CONCLUSIONS

This survey has shown that there is lack of capacity and infrastructure for an effective and harmonized conformance assessment programme. With the exception of South Africa, we can confidently say that all the other SADC member countries have no test labs and a certification body. This was also evident in our discussions with SADC Secretariat, SATA, CRASA and BOCRA.

The countries also lack MRAs coordination. There is lack of capacity in the development and implementation of a framework and regulations for conformance assessment. The huge economy (compared to other countries in the sub-region), high literacy rate and large telecommunications market of South Africa makes it an attractive destination for setting up an accredited lab. The government with relatively more resources available has the ability to set up a certification body and also to build up capacity for conformity assessment.

From the C&I assessment done in SADC through interviews/discussions with key stakeholders and from responses to surveys/questionnaires, it is clear that SADC countries will have to revise their type approval procedures while not being too Eurocentric. Specifically, SADC member states should not align their type approval procedure in such a way as to benefit a particular market. If the members decide to move towards the soft touch approach to type approvals, it should be in a transparent and equitable manner, so as to promote investment in SADC from all parts of the world. This approach to type approval can only be done via a consultative process with all key stakeholders and through a phased approach.

Against this background the establishment of a common C&I regime in SADC member states is proposed to comprise a number of tasks, namely:

1. Plan and conduct a workshop for validation of the survey data for participation of stakeholders that are participating in the collection of C&I assessment data;
2. Implementation of a comprehensive capacity building programme;
3. Develop and harmonize processes and ICT standards across SADC;

4. Development of terms of reference (TORs) for setting up of the C&I test centers with support from the ITU including the number and scope of C&I areas to be covered;
5. Select the most appropriate locations/sites for the C&I test centres;
6. Mobilize financial resources for the C&I project in SADC;
7. Implement C&I test centres and associated programmes;
8. Sustainably operate the C&I test labs and other C&I programmes.

A phased approach is recommended for the implementation of a common C&I regime for the SADC region.

9.0 REFERENCES

1. ITU (2013, June 19). Conformance and interoperability programme status report and action plan
2. Lishan Adam (2006 January). CRASA Harmonization Approach for Standards and Type Approval
3. Guidelines For Developing Countries On Establishing Conformity Assessment Test Labs in Different Regions (May 2012). ITU-D Telecommunication Development Sector.
4. Feasibility study for a conformance testing center (2013)
5. Guidelines for the development, implementation and management of Mutual Recognition Agreements (MRAs) (2013)

LIST OF APPENDICES

Appendix A: Terms of Reference

Appendix B: Missions

Appendix C: List of Participants

Appendix D: List of Countries that Participated

Appendix E: Questionnaire

Appendix F: Country Survey Data

APPENDIX A: TERMS OF REFERENCE

Conformity and Interoperability Assessment on a Regional Basis: Collaboration among Regional and Sub-regional Organizations for establishing a common C&I Regime and Mutual Recognition Agreements

1) Objective

The objective is to undertake the Conformity and Interoperability Assessment on a Regional Basis. This project aims to identify all the necessary elements and promote the Collaboration among Regional and Sub-regional Organizations for establishing a common C&I Regime and Mutual Recognition Agreements, seeking to present possible scenarios to meet the needs and interests of Member States and Regions.

The Assessment shall cover, but not be limited to, the items described below.

2) General aspects of the Region:

- Description of the region e.g. demography, economy, geography, penetration of telecoms and Internet including wireless, broadband and ICTs, governance, service providers, supply and manufacturing, natural resources and export/imports
- What are the countries involved in the study?
- Are there LDC or LIC members in the region?

3) Regulatory framework and Institutions (per country)

- Is there any regulatory framework and regulation which establishes technical requirements for products and services to be legally imported and deployed in the marketplace e.g. ICT products and services, electrical apparatus, environmental requirements, etc.)?
- If yes, what are the Conformity Assessment Schemes adopted for market entry (certification, self-declaration, labelling, use of proxies such as EC, FCC or others etc.)? Are they based on the ISO/CASCO set of Guidelines and standards?

- If there is legislation and regulation dealing with ICT and telecom products and services and related areas such as electrical safety and environmental issues, how is it applied? Is it compulsory or voluntary?
- Where such legislation and regulation exists does it permit delegation of authorities to foreign entities under arrangements such as MRAs on Conformity Assessment e.g. for certification?
- Is there a national standards system and national SDOs?
- Where such SDOs exist are they committed to adoption of international standards wherever possible rather than developing national standards which may deviate from the international ones?
- Is there Metrology legislation and any National Institute of Metrology responsible to maintain the national measurement standards in the country; to establish and maintain their metrological traceability to the units of the International System of Units (SI)?
- Where Metrology legislation exists does it permit delegation of authorities to foreign entities under arrangements such as MRAs e.g. for calibration of equipment?
- Is there any Institution responsible for the Development of conformity assessment programs, in the areas of products, processes, services and personnel, mandatory or voluntary, which involve the approval of regulations? What are these Institutions?

- What are the possible resources from National/Regional/International Funds to assist private and public sector to investment in infrastructure, e.g., Labs and human resources?
- Is there legislation and regulation which establishes importation requirements for products and services such as ICTs including telecom products, electrical safety and environmental aspects
- How is importation control of the products entering the country/region enforced e.g. at point of entry, spot checks and post market surveillance?
- Is there a post market surveillance, audit and enforcement regime established for products entering the country/region, and deployed in the country/region, and a schedule of punishments for infractions?
- What actions, if any, are undertaken to identify counterfeit products and what actions are taken to remove such products from the marketplace and to deal with parties responsible for bringing them into, or deploying them in the country/region?

4) Accreditation

- Is there any Accreditation Body (ISO/IEC 17011) (not only in ICT)?
- In which field and with what scopes?

5) Laboratories

- What are the Laboratories identified in the country/region and what service levels do they provide (e.g. 1st, 2nd and 3rd party testing)?
- Are they Accredited (ISO 17025) or is there any kind of peer evaluation of the lab?
- What are the scopes of such Labs?

6) Certification Bodies and Marking

- What Certification Bodies (ISO/IEC 17065) are in the country, where are they located?
- What are the scopes of the Certification Bodies in ICTs and telecom?
- What Marks of conformity are on products in your country/region that are trusted – i.e. trusted Marks e.g. EU, FCC, IC other

7) Establishing a common C&I Regime and MRAs

- The final work shall specify possible Scenarios to permit the collaboration for establishing of Common C&I Regime and Mutual Recognition Agreements
- What organizations in your country/region could perform the function of MRA coordination such as establishing and maintaining a registry/repository of MRA signatories and related information such as scopes of operation, technical standards covered etc.? Possible organizations to consider for such a function would include trusted regional associations or advisory bodies in Telecoms or ICTs

APPENDIX B: MISSIONS

Travel Plans for Joshua Peprah Dates; 17th-26th July

1. **Accra to Nairobi (18th-19th July)**, visit with the Other Expert and together meet with SG of ATU, Technical Director of ARSO, Chief Manager Planning and Strategy on behalf of the Managing Director of the Kenya Bureau of Standards) to discuss this mission and to specifically solicit the support and assistance of the ATU SG to get the administrations involved with this study to support and treat questionnaire as very urgent.

2. Nairobi to Johannesburg: 20th-23rd July)

Visit with ICASA to understand the state of C&I in South Africa.

Go through their responses to the C&I Questionnaire submitted by the ITU consultants

3. Johannesburg to Windhoek: (23rd-26th July)

Attend and make presentation in the SNO meeting to SADC Telecom operators association (SATA) to learn their operational perspectives on Conformance and Interoperability, and secure a 'buy into' the implementation of a possible C&I program and regime in their jurisdiction.

Travel Plans for Dr. Thomas Senaji July 21 - 29, 2013

1. Nairobi

(i) Arrange the ground logistics for the meeting with SG ATU and other C&I stakeholders ahead of the visit by the Main Expert

(ii) Visit with SG of ATU together with the Main Expert, to discuss the C&I mission and to solicit his personal support and assistance to get the administrations involved with this study to support and treat questionnaire as very urgent.

2. Gaborone

(i) Visit with SADC officials in charge of ICT and Regional standardization for Southern Africa at SADC headquarters to learn about their perspectives and regional coordination activities regarding ICT and the standardization program thereof including perspectives on Conformance and Interoperability; and to secure their 'buy into' the process of implementation of a possible C&I program and regime in their jurisdiction; and into the possible locations of C&I labs.

(ii) Visit with CRASA Executive secretary to get the Southern Africa regulatory experiences and perspectives with regard to C&I implementation in the SADC region and secure their support with facilitating the responses to the questionnaires by ICT regulators in SADC

(iii) Visit the Standards Development Organization (SDO) of Botswana to get insights into their working and how it might facilitate the implementation of a C&I program or regime in the region.

(iv) Visit with Botswana ICT regulator (Botswana Communications Regulatory Authority, BOCRA) to get insights on their C&I situation, its enforcement practices; and their perspectives/insights on possible implementation of C&I program in SADC.

APPENDIX C: LIST OF PARTICIPANTS

ITU

Dr. Thomas Senaji - ITU Consultant

SADC Secretariat

Dr. George Ah-Thew - Telecommunications Programme Office
Cecila Maelodi-Onyadile

CRASA

Antony Chigaazira - tony@it.bw Executive Secretary
Bridget Linzie - blinzie@it.bw - Head of Electronic Communications

Botswana Communications Regulatory Authority (BOCRA)

Bathopi Luke - Director Technical Services - Luke@bocra.org.bw
Cynthia Phiase - Head of Standards - phiase@bocra.org.bw
Lizzy Tsheko - Manager - Compliance and Monitoring - tseko@bocra.org.bw
Sexton Segobaetso - Senior Telecommunications Engineer - segobaetso@bocra.org.bw
Eva Kentshitswe - Senior Telecommunications Engineer - kentshitswe@bocra.org.bw
Moakofi Kamanga - Senior Telecommunications Engineer - kamanga@bocra.org.bw

ICASA

ITU – Joshua Peparah

ICASA –

1. Dr Stephen Mncube - Chairperson, ICASA; chairperson@icasa.org.za
2. Albert Ntavhaedzi - Manager, Type Approval @ Licensing.
ANtvhaedzi@icasa.org.za
3. Jubie Matlou - Senior Manager, Communications and International Relations.
jmatlou@icasa.org.za

SATA (SNO Forum, Windhoek: 24th-26th July)

SATA membership in attendance at the forum

- 1 Jacob Munadawafa - Executive Secretary, SATA; Jacob.munadawafa@sata-sec.net2
- 2 John Saidi Kimbe - Manager of Technology & Policy.; john.kimbe@sata-sec.net

Appendix D: List of Countries that Participated

Angola,

Botswana,

Democratic Republic of Congo (DRC),

Lesotho,

Malawi,

Mauritius,

Mozambique,

Namibia,

Swaziland,

Tanzania,

Zambia,

Zimbabwe,

South Africa,

Seychelles, and

Madagascar.

Appendix E: Questionnaire

CONFORMITY AND INTEROPERABILITY ASSESSMENT ON A REGIONAL BASIS:

Collaboration among Regional and Sub-Regional Organizations for Establishing a Common Conformance and Interoperability Regime and Mutual Recognition Agreements

Preamble

In the framework of collaboration among regional and sub-regional organizations for establishing a common conformity and interoperability (C&I) regime and mutual recognition agreements, the ITU is carrying out conformity and interoperability assessment on a regional basis. The current study/assessment covers the 15 Southern African Development community (SADC) countries comprising Angola, Botswana, Democratic Republic of Congo (DRC), Lesotho, Malawi, Mauritius, Mozambique, Namibia, Swaziland, Tanzania, Zambia, Zimbabwe, South Africa, Seychelles, and Madagascar. Even though few of these countries notably South Africa and Mauritius have made greater strides in the development of their ICT systems especially in the areas of Conformity assessment, others (e.g. DRC and Lesotho) still need to catch up with those that have made relatively greater progress. It is worth mentioning that Conformance and interoperability of systems within the overall framework of collaboration in the standardization of systems and networks can make a significant contribution to this development hence the need for these assessments in the regions.

Objective

The objective is to undertake the Conformity and Interoperability Assessment on Regional Basis. This project aims to identify all the necessary elements and promote the Collaboration among Regional and Sub-regional Organizations for establishing a common C&I Regime and Mutual Recognition Agreements. The assessment will identify most of the SADC countries requirements and existing gaps in the areas of Conformity Assessment Testing and present some possible and harmonized scenarios to meet the needs and interests of Member States in the Region.

Expected Deliverable/Outcome

At the end of the assessment possible Scenarios for establishing of Common C&I Regime and Mutual Recognition Agreements shall be specified. The deliverable shall also recommend possible ways to facilitate the implementation of ITU Conformity and Interoperability

Programme especially in the areas of Capacity building and the Establishment of Test Centres on regional and subregional basis. The assessment shall recommend regional or subregional organizations suitable to perform conformity assessment testing including the function of MRA coordination. The assessment shall also recommend entities that are capable of providing funding opportunities to support the establishment of testing centers in the region.

Scope of Assessment

In this assessment geographical/ICT indicators (Part A), service providers (Part B), regulatory/legal framework and institutions (Part C) dealing with conformance assessment, accreditation issues/bodies (Part D), laboratories (Part E), certification bodies and marking (F) are covered for each country. Further, the demographic (Part G), and economic (Part H) factors are also covered.

Assessment Tool/Questionnaire

The tool for this assessment is based on Questionnaire which is found below. The Questionnaire comprises two sections: Section One (for Part A, B, C, D, E and Part F) and Section Two (Parts G and H)

SECTION ONE

1. Geography and ICT Indicators

- ❖ Total Area:
- ❖ Highest point:
- ❖ Lowest point:
- ❖ Penetration of Telecoms and Internet including wireless, broadband and ICTs:
- ❖ Number of voice subscribers (fixed):
- ❖ Number of voice subscribers (mobile):
- ❖ Penetration of voice subscribers (fixed):
- ❖ Penetration of voice subscribers (mobile):
- ❖ Number of internet subscribers:
- ❖ Number of wireless internet subscribers:
- ❖ Number of fixed internet subscribers:
- ❖ Number of internet subscribers using mobile phones for access:
- ❖ Penetration of internet subscribers:
- ❖ Penetration of fixed internet subscribers:
- ❖ Penetration of wireless internet subscribers:
- ❖ % of telecommunications coverage:
- ❖ % of 3G/wireless broadband coverage:
- ❖ % of coverage for fixed access infrastructure (fibre and copper):
- ❖ Penetration of internet in rural areas:
- ❖ Penetration of voice in rural areas:

2. Service Providers

- ❖ Number of mobile network operators:
- ❖ Number of fixed telephony operators:
- ❖ Number of mobile network operators providing 3G (WCDMA, HSDPA, HSPA+) services:
- ❖ Number of service providers deploying WiMAX:
- ❖ Number of service providers deploying LTE:
- ❖ Number of service providers providing Internet:
- ❖ Number of fixed Internet service providers:

- ❖ Number of wireless Internet service providers:
- ❖ Number of telecom infrastructure providers:
- ❖ Number of telecom infrastructure providers (fibre/copper):
- ❖ Number of telecom infrastructure providers (tower):
- ❖ Number of foreign owned telecom service providers:

3. Regulatory Framework and Institutions (Per Country)

- ❖ Is there any regulatory framework and regulation which establishes technical requirements for products and services to be legally imported and deployed in the marketplace?

If yes, what products/services/areas does it cover? (indicate all that apply)

	Service/product/areas covered	YES	NO
1	ICT/telecom products and services (i.e. network and terminal equipment)	YES	
2	Electrical/electronic apparatus	YES	
3	Environmental requirements	YES	
4			

- ❖ If yes, indicate the Conformity Assessment Schemes adopted for market entry (check all that apply)
 - Certification
 - self-declaration
 - third party declaration (through conformity assessment body)
 - labelling
 - Use of proxies such as IEC, FCC, ETSI, etc
 - others (specify)_____

- ❖ Are these Conformity Assessment Schemes based on the ISO/CASCO set of Guidelines and standards?

- ❖ If there is legislation and regulation dealing with ICT and telecom products and services and related areas such as electrical safety and environmental issues, how is it applied? Is it compulsory or voluntary?

- ❖ Where such legislation and regulation exists does it permit delegation of authorities to foreign entities under arrangements such as Mutual Recognition Agreements (MRAs) on Conformity Assessment e.g. for certification?

- ❖ Is there a national standards system and national standards development organisation (SDOs)? (indicate YES/NO in the following table)

	YES	NO
National standards system		
SDO		

- ❖ Where such SDOs exist are they committed to adoption of international standards wherever possible rather than developing national standards which may deviate from the international ones?

- ❖ Is there Metrology legislation and any National Institute of Metrology responsible to maintain the national measurement standards in the country; to establish and maintain their metrological traceability to the units of the International System of Units (SI)?

	YES	NO
Metrology legislation exists?		
National Metrology institute for national measurement and their traceability to international units		

- ❖ If Metrology legislation exists in your country does it permit delegation of authorities to foreign entities under arrangements such as MRAs e.g. for calibration of equipment?

- ❖ Is there any Institution responsible for the Development of conformity assessment programs?
- ❖ If, YES, which areas of conformity assessment does it cover? (indicate all areas that apply)

	Areas covered by conformance assessment programs	YES	NO	M*	V^
1	Products				
2	Processes				
3	Services				
4	Personnel				

* indicate whether conformance assessment in this area is mandatory (M)

^ indicate whether conformance assessment in this area is voluntary (V)

What are these Institutions involved in the development of conformance assessment programs?

- ❖ What are the possible resources from National/Regional/International Funds to assist private and public sector to invest in infrastructure, e.g., Labs and human resources? (list all)
- ❖ Is there legislation and regulation which establishes importation requirements for products and services such as ICTs including telecom products, electrical safety and environmental aspects
- ❖ How is importation control of the products entering the country/region enforced e.g. at point of entry, spot checks and post market surveillance?
- ❖ Is there a post market surveillance, audit and enforcement regime established for products entering the country/region, and deployed in the country/region, and a schedule of punishments for infractions?

- ❖ What actions, if any, are undertaken to identify counterfeit products and what actions are taken to remove such products from the marketplace and to deal with parties responsible for bringing them into, or deploying them in the country/region?

- *counterfeit products are identified by (list all means):*

- *the actions taken to remove counterfeit products include (list/state all):*

- *action taken against parties that bring into and deploy counterfeit products include (list all action):*

4. Accreditation

- ❖ Is there any Accreditation Body (ISO/IEC 17011) (not only in ICT)?

- ❖ In which field/s does it accredit organisations and with what scopes?

	Accreditation body	Field (e.g. telecom)	Scope (e.g. products/services/personnel etc)
1			
2			
3			
4			

5. Laboratories

- ❖ What are the Laboratories identified in the country/region and what service levels do they provide (e.g. 1st, 2nd and 3rd party testing)?

- ❖ Are they (Labs) Accredited (ISO 17025) or is there any kind of peer evaluation of the lab?
- ❖ What are the fields and scopes of such Labs?
- ❖ How is the laboratory funded? (by Government, Organisations and Individuals). Indicate all that apply

6. Certification Bodies And Marking

- ❖ What Certification Bodies (ISO/IEC 17065) are in the country, where are they located?
- ❖ What are the fields and scopes of the Certification Bodies? (eg ICTs and Telecom)
- ❖ What Marks of conformity are on products in your country/region that are trusted – i.e. trusted Marks e.g. EU, FCC, IEC etc

SECTION TWO

7. Demographics

- ❖ Population (Total):
- ❖ Population (Female):
- ❖ Population (Male):
- ❖ Population Growth Rate:
- ❖ Birth Rate:
- ❖ Death Rate:
- ❖ Life Expectancy:
- ❖ Life Expectancy (Female):
- ❖ Life Expectancy (Male):
- ❖ Fertility Rate:
- ❖ Infant Mortality Rate:
- ❖ Literacy rate:

- ❖ Age Structure
- ❖ 0-14 years:
- ❖ 15-64 years:
- ❖ 65 and above:
- ❖ Native Languages:
- ❖ Official Languages:

8. Economy

- ❖ Gross Domestic Product (GDP):
- ❖ GDP Growth:
- ❖ GDP per capita:
- ❖ GDP by sector:
- ❖ Inflation:
- ❖ Unemployment Rate:
- ❖ Main industries:
- ❖ Exports (value):
- ❖ Export Goods:
- ❖ Main Export Partners:
- ❖ Imports (value):
- ❖ Import Goods:
- ❖ Main Import Partners:
- ❖ Foreign Direct Investment (value):
- ❖ Gross External Debt (country specific):
- ❖ Public Debt (country specific) :
- ❖ Foreign Reserves (country specific):

Appendix F: Country Survey Data

SOUTH AFRICA CONTRIBUTIONS

SECTION ONE

9. Geography and ICT Indicators

Data specified as of March 2013, unless otherwise stated.

Data Source: SA Telecomms Model 2013, Africa Analysis, unless otherwise stated

❖ Total Area:	1,219,090 Square Km [Statistics SA]
❖ Highest point:	Njesuthi: 3,408 m [CIA World Fact book]
❖ Lowest point:	Atlantic Ocean: 0 m [CIA World Fact book]
❖ Penetration of Telecoms and Internet including wireless, broadband and ICTs,	
Fixed Service Population Penetration:	7.8 %
Mobile Service Population Penetration:	128.7 %
Broadband Population Penetration:	8.7 %
❖ Number of voice subscribers (fixed): 3 943 000 ⁶	
❖ Number of voice subscribers (mobile): 64,515,989 ⁷ SIMS	
❖ Penetration of voice subscribers (fixed): 7.79 %	
❖ Penetration of voice subscribers (mobile): 127.54 %	
❖ Number of internet subscribers: 4,708,278	
❖ Number of wireless internet subscribers: 3,543,586 ⁸	
❖ Number of fixed internet subscribers: 1,164,692 ⁹	
❖ Number of internet subscribers using mobile phones for access: 1,3593,076	
❖ Penetration of internet subscribers: 9.3 %	
❖ Penetration of fixed internet subscribers: 2.3 %	

⁶ This figure refers to the number of access lines.

⁷ This figure includes Prepaid customers, postpaid customers and community payphones

⁸ This figure includes mobile and nomadic service subscribers

⁹ This figure includes fixed, dial-up and leased lines

- ❖ Penetration of wireless internet subscribers: 7 %
- ❖ % of telecommunications coverage: Through satellite, 100% of South Africa is covered for voice, data and broadcasting services. Coverage of specific services will vary depending on operator and services (voice or data). Coverage could also be defined as population coverage or geographical area coverage.
- ❖ % of 3G/wireless broadband coverage: Operator and technology specific (e.g. 3G/fixed wireless/LTE); e.g. in according to Vodacom's annual report, they provide EDGE (2G) for 95.9% of the population, and 3G for 84.9% of the population.
- ❖ % of coverage for fixed access infrastructure (fibre and copper): a definition of "coverage of fixed access infrastructure" must be defined; this is being debated within South Africa.
- ❖ Penetration of internet in rural areas: Will differ for fixed and mobile and will depend on the definition of "rural".
- ❖ Penetration of voice in rural areas: Will differ for fixed and mobile and will depend on the definition of "rural".

10. Service Providers

In terms of the ECA, apart from broadcasting service licences and spectrum licences, the two main categories of licences are electronic communication network licence and electronic communication service licence, which allows for, in basic terms, the provisioning of networks and services. These can further be categorised as a class licence or an individual licence, which is based on the scope (area) of the licence, amongst others. In South Africa there are in excess of 350 ECNS and ECS licences although not all are necessarily operational. The Terms and Conditions of these licences are all the same. It is also important to note that these licences are technology and service neutral; in principle any technology and services could be provided (for wireless dependent on access to spectrum).

In reading these responses it is important to note the above.

- ❖ Number of mobile network operators: There are 4 national mobile network operators (Vodacom, MTN, Cell-C and Telkom)

- ❖ Number of fixed telephony operators: Two traditional fixed telephony operators namely Telkom and Neotel; various ISPs also provide VoIP type services
- ❖ Number of mobile network operators providing 3G (WCDMA, HSDPA, HSPA+) services: 4 (Vodacom, MTN, cell-C and Telkom); Virgin Mobile also acts as an MVNO
- ❖ Number of service providers deploying WiMAX: Since licenses are technology and service neutral it is not possible to give an accurate figure. Nevertheless, based on certain spectrum assignments and market reports, at least Telkom, Neotel and Vodacom have deployed WiMAX networks.
- ❖ Number of service providers deploying LTE: All four mobile network operators have deployed LTE networks; some are already commercial while others are still in trial.
- ❖ Number of service providers providing Internet: Apart from the larger fixed and mobile operators who all provide internet services, many ISPs also provides internet services.
- ❖ Number of fixed Internet service providers: It is not clear how “fixed internet service providers” are defined. Fixed could be cable or wireless (e.g. PTP radios, WiMAX, etc); apart from Telkom, Vodacom, Neotel, etc using various technologies to provide fixed internet services, many ISPs also provide internet services using fixed wireless technologies.
- ❖ Number of wireless Internet service providers: See response above
- ❖ Number of telecom infrastructure providers: As indicated above, there are in excess of 350 ECNS licensees in South Africa
- ❖ Number of telecom infrastructure providers (fibre/copper): See response above; as also indicated, al ECNS licenses are technology neutral, fibre and/or copper can be provided
- ❖ Number of telecom infrastructure providers (tower): Several ECNS licensees provide facilities, including towers. A few companies also specialise in providing tower facilities and the management thereof.
- ❖ Number of foreign owned telecom service providers: Of the larger telecoms companies, Vodacom and Cell-C have a majority foreign ownership whereas other licensees, for example Smile Communications, also has foreign ownership.

11. Regulatory Framework and Institutions (Per Country)

- ❖ Is there any regulatory framework and regulation which establishes technical requirements for products and services to be legally imported and deployed in the marketplace?

The Electronic Communications Act, Act No. 36 of 2005 (section 35), provides the legal framework for the Authority (i.e. ICASA) for type approval of electronic communication equipment and facilities, including radio apparatus, in South Africa. Section 36 of the ECA provides the legal framework for ICASA to prescribe standards for the performance and operations of electronic communication equipment or facility, including radio apparatus. In prescribing standards, the provisions of the Standards Act, Act No. 29 of 1993 (now Act No. 8 of 2008), also applies.

In terms of section 36 of the ECA, ICASA prescribed regulations in terms of technical standards for electronic communications equipment (Government Gazette No. 32885 dated 22 January 2010), also referred to as the Official List of Regulated Standards. These regulations prescribe standards for the performance and operations of electronic communications equipment and facilities including radio apparatus and addresses EMC, safety and performance standards. In April 2013, ICASA published an update to the Official List and invited comments from the public (Government Gazette No. 36382 dated 16 April 2013). This process is ongoing.

In December 2012, ICASA published draft Regulations for the Type Approval of electronic communication equipment and facilities and the certification of type approved equipment (Government Gazette No. 36046 dated 28 December 2012). The draft regulations deals with matters such as certification, registration of suppliers, different type approval processes, applicable standards, type approval fees and the surveillance of the market pertaining to type approval. Following industry consultation, ICASA published an updated draft Type Approval Regulations for further consultation (Government Gazette No. 36381 dated 16 April 2013). The type approval regulations outline the process by which equipment or a new device or system is authorised by the Authority for use or import into South Africa. This process is ongoing.

Also in December 2012, ICASA published draft labelling regulations (Government Gazette No. 36045 dated 28 December 2012) inviting inputs from industry. These draft regulations deals with matter such as equipment requiring labelling, label design, e-labelling, etc. Following public consultation a 2nd draft updated regulation was published for public consultation (Government Gazette No. 36132 dated 4 February 2013). This process is also ongoing. Currently labelling of TLTE (Telecommunication Line Terminal equipment) is addressed in the Telecommunications regulations (Government Gazette No. 23212 dated 26 August 1994 as amended).

Technical standards for products and services, including electronic communications equipment and facilities, are issued by the SABS (South African Bureau of Standards) in terms of the Standards Act (Act No. 8 of 2008) and national Norm. These standards are issued through an industry consultative process. Regulation of relevant products and services are done by the National Regulator for Compulsory Specifications (NRCS), which was established in terms of the National Regulator for Compulsory Specifications Act, 2008 (Act No. 5 of 2008). Compulsory specifications for electrical and electronic apparatus have been prescribed (e.g. Government Gazette No. R.89 dated 6 February 2009). This Regulation deals with, for example, audio, visual and similar electronic apparatus, information technology equipment, luminaries and electrical tools. Through a MoU between ICASA and SABS, compliance and type approval of electronic communication equipment is done by ICASA.

If yes, what products/services/areas does it cover? (indicate all that apply)

	Service/product/areas covered	YES	NO
1	ICT/telecom products and services (i.e. network and terminal equipment)	✓	
2	Electrical/electronic apparatus	✓	
3	Environmental requirements	✓	

❖ If yes, indicate the Conformity Assessment Schemes adopted for market entry (check all that apply)

- certification

The SABS telecoms laboratory tests, for example, PABXs, telephones, CLI, facsimile machines and modems to specifications TE 001 & TE 010 (South Africa National Standards). Other SABS laboratories test electronic equipment, including the above, to SANS 60950 (IEC 60950), SANS 60065 (IEC 60065), SANS 2200 (CISPR 22) and SANS 224 (CISPR 24). The SABS has a Product Mark scheme but this is voluntary and is not required for market entry. Full scope of accreditation is available on South African National Accreditation Scheme (SANAS) website or from SABS on request.

In terms of the ECA, ICASA is responsible for type approval of electronic communication equipment and facilities, including radio apparatus. To this extent, national standards issued by the SABS and recorded in the Official List of regulated Standards are used (EMC, performance and safety). According to the draft Type Approval regulations, type approval will be limited to radio equipment and TTE (Telecommunication Terminal Equipment). An ICASA label must be added to all type approved equipment.

- self-declaration: Not applicable in South Africa
- Third party declaration (through conformity assessment body): Not applicable in South Africa

- Labeling- There is pending legislation for energy efficiency labeling that will include audio & video equipment – refer to SANS 941. ICASA requires labeling of type approved equipment as indicated above.

- use of proxies such as IEC, FCC, ETSI, etc: is Not applicable in South Africa; SA does however make extensive use of the standards produced by IEC, ETSI, which is then issued as national standards.

- others (specify) _____

- ❖ Are these Conformity Assessment Schemes based on the ISO/CASCO set of Guidelines and standards?

Yes, the SABS Product Mark Scheme is based on ISO/IEC 17025, which outlines the general requirements for the competence of testing and calibration laboratories.

- ❖ If there is legislation and regulation dealing with ICT and telecom products and services and related areas such as electrical safety and environmental issues, how is it applied? Is it compulsory or voluntary?

Yes, as indicated above, compulsory specifications for electrical and electronic apparatus are prescribed by the NRCS. Mandatory standards for electronic communications equipment is prescribed by ICASA in the Official List, as indicated above.

- ❖ Where such legislation and regulation exists does it permit delegation of authorities to foreign entities under arrangements such as Mutual Recognition Agreements (MRAs) on Conformity Assessment e.g. for certification?

No, SA does not have MRAs on conformity Assessments.

However, in accordance with the draft Regulations for the Type Approval of Electronic Communications Equipment and Electronic Communications Facilities and the Certification of Type Approved Equipment, Government Gazette No. 36381 (Notice 394 of 2013) of 16 April 2013, the Authority will only accept test reports that are issued by an Accredited Test Laboratory (ATL), where ATL refers to any laboratory accredited by its own national accreditation body and/or other recognised accreditation body in terms of ISO/IEC 17025 requirements.

- ❖ Is there a national standards system and national standards development organisation (SDOs)? (indicate YES/NO in the following table)

	YES	NO
National standards system	✓	
SDO	✓	

- ❖ Where such SDOs exist are they committed to adoption of international standards wherever possible rather than developing national standards which may deviate from the international ones?

Yes, the SABS is committed, wherever possible, to encourage technical committees to adopt international or regional standards, since this will ultimately result in global standardization, with all its benefits.

- ❖ Is there Metrology legislation and any National Institute of Metrology responsible to maintain the national measurement standards in the country; to establish and maintain their metrological traceability to the units of the International System of Units (SI)?

	YES	NO
Metrology legislation exists?	✓	
National Metrology institute for national measurement and their traceability to international units	✓	

- ❖ If Metrology legislation exists in your country does it permit delegation of authorities to foreign entities under arrangements such as MRAs e.g. for calibration of equipment?

Yes, under the CIPM (International Committee for Weights and Measures) MRA. Further information is available from the NRCS and the South African National Metrological Institute (NMI-SA).

- ❖ Is there any Institution responsible for the Development of conformity assessment programs?

Yes, the SABS and ICASA (as indicated above); questions maybe need rephrasing.

- ❖ If, YES, which areas of conformity assessment does it cover? (indicate all areas that apply)

	Areas covered by conformance assessment programs	YES	NO	M*	V^
1	Products (M* or V^ is dependent on product) ^{***}	X		X	X
2	Processes (M* or V^ is dependent on process)	X		X	X
3	Services	X			X
4	Personnel (M* or V^ is dependent on Personnel)	X		X	X

****: ICASA does conformity assessment only for products and then specifically for electronic communications equipment and facilities, including radio apparatus.*

** indicate whether conformance assessment in this area is mandatory (M)*

^ indicate whether conformance assessment in this area is voluntary (V)

What are these Institutions involved in the development of conformance assessment programs?

This question is not clear.

- ❖ What are the possible resources from National/Regional/International Funds to assist private and public sector to invest in infrastructure, e.g., Labs and human resources? (list all)

To be addressed

- ❖ Is there legislation and regulation which establishes importation requirements for products and services such as ICTs including telecom products, electrical safety and environmental aspects?

ECA is principle legislation for electronic communication equipment and facilities including radio apparatus; Regulations prescribed by ICASA (i.e. Type Approval Regulations, Official List and Labeling Regulations), as addressed above. NRCS also prescribes compulsory specifications as indicated above.

- ❖ How is importation control of the products entering the country/region enforced e.g. at point of entry, spot checks and post market surveillance?

ICASA and NRCS collaborate with SARS Custom to ensure that the products that are entering the Country are certified. Random checks and post-market surveillance are conducted by both ICASA and NRCS

- ❖ Is there a post market surveillance, audit and enforcement regime established for products entering the country/region, and deployed in the country/region, and a schedule of punishments for infractions?

Yes, the Authority may conduct market surveillance on all equipment requiring type approval based on either a complaint or as part of a random audit. It is an offence to offer for sale or have in possession, with the intention to sell, any equipment that is not type approved. The penalty for an offence is subject to imprisonment for six months and/or a fine not exceeding R1mil rand. It is

also an offence for a supplier to affix a label to equipment that has not been type approved. The penalty for an offence in this regard is subject to imprisonment of 6 months and/or a fine not exceeding R1mil. A supplier shall also not distribute, supply, offer for sale or lease any type approved any equipment without the affixing the necessary label. In this regard an offence is subject to imprisonment of six months and/or a fine of R1000k. It is noted that these regulations are still in draft but is expected to be prescribed in due course.

❖ What actions, if any, are undertaken to identify counterfeit products and what actions are taken to remove such products from the marketplace and to deal with parties responsible for bringing them into, or deploying them in the country/region?

- counterfeit products are identified by (list all means):

- *Point of entry inspection for imports*
- *Market Surveillance*

- the actions taken to remove counterfeit products include (list/state all):

Imported equipment that does not meet the Authority's technical standards will be confiscated and destroyed.

All equipment relating to revoked Type Approval certificates i.e. fails a conformity assessment conducted by the Authority, will be withdrawn from the market.

- action taken against parties that bring into and deploy counterfeit products include (list all action):

- *Financial Penalties*
- *Imprisonment*

12. Accreditation

- ❖ Is there any Accreditation Body (ISO/IEC 17011) (not only in ICT)?

South African National Accreditation System (SANAS)

- ❖ In which field/s does it accredit organisations and with what scopes? SANAS covers ICT and Telecom products and Electrical Equipment and other unrelated scopes.

	Accreditation body	Field (e.g. telecom)	Scope (e.g. products/services/personnel etc)
1	SANAS	Radio Frequency Measurements	Two Way Radios, Remote, Immobilizer. All devices till 1GHz, except for GSM devices.
2	SANAS	Electromagnetic Compatibility / Electromagnetic interference	ICT equipment and Electrical Equipment
3	SANAS	Electrical Safety	ICT equipment and Electrical Equipment
4	SANAS	Lighting	Lighting Equipment
5	SANAS	Telecom	Fixed Line Equipment (Fax Machines, Telephones and etc)
6	SANAS	more	more

13. Laboratories

- ❖ What are the Laboratories identified in the country/region and what service levels do they provide (e.g. 1st, 2nd and 3rd party testing)? *Telkom, SABS, Gerotek, Test Africa, ITC and ISSA-Houwteq.*
- ❖ Are they (Labs) Accredited (ISO 17025) or is there any kind of peer evaluation of the lab? *Telkom, SABS, Gerotek, Test Africa, ITC Laboratories are accredited by SANAS.*

- ❖ What are the fields and scopes of such Labs?
 - *Telkom-accredited for Telecom products*
 - *SABS accredited for RF, EMC, Electrical Safety and many others*
 - *Gerotek – accredited for RF and EMC/EMI*
 - *Test Africa – accredited for Electrical Safety*
 - *ITC – accredited for EMC/EMI tests*

- ❖ How is the laboratory funded? (by Government, Organisations and Individuals). Indicate all that apply. All Labs are self-funded. Thus means that they can only cover the scopes that are required by the industry.

14. Certification Bodies And Marking

- ❖ What Certification Bodies (ISO/IEC 17065) are in the country, where are they located? *The SABS has a Product Mark scheme, as well as Systems and Services Mark Schemes, that are accredited by SANAS.*
- ❖ What are the fields and scopes of the Certification Bodies? (e.g. ICTs and Telecom) *Details of scope of accreditation of the SABS Certification body are available on SANAS.*
- ❖ What Marks of conformity are on products in your country/region that are trusted – i.e. trusted Marks e.g. EU, FCC, IEC, etc. *In South Africa product certification is voluntary except on a small number of products, for example tinned foods, where the SABS Product Certification Mark is mandated by legislation. However all products that are approved by ICASA must bear ICASA mark.*

SECTION TWO

15. Demographics [Data Source: World development Indicators 2011, unless otherwise stated]

- ❖ Population (Total): 50,586,757
- ❖ Population (Female): 50.5%
- ❖ Population (Male): 49.5%

- ❖ Population Growth Rate: 1.2%¹⁰
- ❖ Birth Rate: 20.9 per 1000 people
- ❖ Death Rate: 14.7 per 1000 people
- ❖ Life Expectancy: 52.6¹¹ years
- ❖ Life Expectancy (Female):53.2 years
- ❖ Life Expectancy (Male): 52 years
- ❖ Fertility Rate: 2.4 births per woman
- ❖ Infant Mortality Rate: 34.6 per 1000 live births
- ❖ Literacy rate: 88.7% of people ages 15 and above (Year 2007)
- ❖ Age Structure
 - 0-14 years: 29.9%
 - 15-64 years: 65.4%
 - 65 and above: 4.8 %
- ❖ Native Languages:

Khoi, Nama, San, German, Gujarati, Hindi, Portuguese, Tamil, Telegu, Urdu, Arabic, Hebrew, Sanskrit and others. [Constitution of the Republic of South Africa, Act No. 108 of 1996]

- ❖ Official Languages:

Sepedi, Sesotho, Setswana, siSwati, Tshivenda, Xitsonga, Afrikaans, English, isiNdebele, isiXhosa and isiZulu [Constitution of the Republic of South Africa, Act No. 108 of 1996]

16. Economy

- ❖ Gross Domestic Product (GDP): 408,236.8 million US \$
- ❖ GDP Growth: 3.1% annual
- ❖ GDP per capita: 8,070.0 US \$
- ❖ GDP by sector:
 - Agriculture 2.4% of GDP
 - Industry 30.6% of GDP
 - Services 67.0% of GDP

¹⁰ Population growth (annual %) is the exponential rate of growth of midyear population from year t-1 to t, expressed as a percentage

¹¹ Life expectancy at birth indicates the number of years a newborn infant would live if prevailing patterns of mortality at the time of its birth were to stay the same throughout its life.

- ❖ Inflation: 5.0%
- ❖ Unemployment Rate: 32.9% of total unemployment

- ❖ Main industries:
 - Finance, real estate and business services
 - General Government Services
 - The wholesale, retail and motor trade and catering and accommodation industry
 - The manufacturing industry [**Statistics SA Statistical Release P04411**]

- ❖ Exports (value): 117,681,128,328.6 US \$¹²
- ❖ Export Goods: gold, diamonds, platinum, other metals and minerals, machinery and equipment [**CIA World Fact Book**]
- ❖ Main Export Partners: China, United States, Germany, United Kingdom, India [**CIA World Fact Book**]
- ❖ Imports (value): 120,105,761,232.7 US \$¹³
- ❖ Import Goods: machinery and equipment, chemicals, petroleum products, scientific instruments, foodstuffs [**CIA World Fact Book**]
- ❖ Main Import Partners: China, Germany , United States , Saudi Arabia, Japan, Iran, United Kingdom [**CIA World Fact Book**]

- ❖ Foreign Direct Investment (value): 5,889,306,980.8 US\$¹⁴ (net inflows)
- ❖ Gross External Debt (country specific): 113 134 million US\$ (31 Dec 2011) [**SA Reserve Bank**]

¹² Exports of goods and services comprise all transactions between residents of a country and the rest of the world involving a change of ownership from residents to nonresidents of general merchandise, goods sent for processing and repairs, nonmonetary gold, and services

¹³ Imports of goods and services comprise all transactions between residents of a country and the rest of the world involving a change of ownership from nonresidents to residents of general merchandise, goods sent for processing and repairs, nonmonetary gold, and services.

¹⁴ Foreign direct investment are the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors.

- ❖ Public Debt (country specific) : 156 453 million (31 Mar 2012) [**National Treasury, Debt Management Report 2011/12**]
- ❖ Foreign Reserves (country specific): 48.87 billion US\$¹⁵ (31 December 2011 est.) [**CIA World Fact Book**]

¹⁵ This entry gives the dollar value for the stock of all financial assets that are available to the central monetary authority for use in meeting a country's balance of payments needs as of the end-date of the period specified. This category includes not only foreign currency and gold, but also a country's holdings of Special Drawing Rights in the International Monetary Fund, and its reserve position in the Fund

BOTSWANA CONTRIBUTIONS

SECTION ONE

1. Geography and ICT Indicators

- ❖ Total Area: 581,730 km²
- ❖ Highest point:
- ❖ Lowest point:
- ❖ Penetration of Telecoms and Internet including wireless, broadband and ICTs,
- ❖ Number of voice subscribers (fixed): 162,718
- ❖ Number of voice subscribers (mobile): 3,095,894
- ❖ Penetration of voice subscribers (fixed): 8%
- ❖ Penetration of voice subscribers (mobile): 153%
- ❖ Number of internet subscribers: 977,462
- ❖ Number of wireless internet subscribers: 958,074
- ❖ Number of fixed internet subscribers: 19,388
- ❖ Number of internet subscribers using mobile phones for access: 954,976
- ❖ Penetration of internet subscribers: 48%
- ❖ Penetration of fixed internet subscribers: 1%
- ❖ Penetration of wireless internet subscribers: 47%
- ❖ % of telecommunications coverage: 95%
- ❖ % of 3G/wireless broadband coverage: 35% beMobile, 70% Mascom and 40% Orange
- ❖ % of coverage for fixed access infrastructure (fibre and copper):
- ❖ Penetration of internet in rural areas:
- ❖ Penetration of voice in rural areas:

2. Service Providers

- ❖ Number of mobile network operators: 3 (Mascom, Orange, BTC)
- ❖ Number of fixed telephony operators: 3 (Mascom, Orange, BTC)
- ❖ Number of mobile network operators providing 3G (WCDMA, HSDPA, HSPA+) services: 3 (Mascom, Orange, BTC)
- ❖ Number of service providers deploying WiMAX: 3 (Orange, GBS and Microtech)

- ❖ Number of service providers deploying LTE: 0
- ❖ Number of service providers providing Internet: *All PTOs and Active VANS*
- ❖ Number of fixed Internet service providers: *(how do we treat fixed wireless access?)*
- ❖ Number of wireless Internet service providers: *(how do we treat fixed wireless access?)*
- ❖ Number of telecom infrastructure providers: 1 (BofiNet)
- ❖ Number of telecom infrastructure providers (fibre/copper): 2 (BofiNet + BTC)
- ❖ Number of telecom infrastructure providers (tower): Not yet, infrastructure sharing encouraged amongst the owners of towers
- ❖ Number of foreign owned telecom service providers: 2 foreign owned

3. Regulatory Framework and Institutions (Per Country)

- ❖ Is there any regulatory framework and regulation which establishes technical requirements for products and services to be legally imported and deployed in the marketplace?

Yes

If yes, what products/services/areas does it cover? (indicate all that apply)

	Service/product/areas covered	YES	NO
1	ICT/telecom products and services (i.e. network and terminal equipment)	✓	
2	Electrical/electronic apparatus	✓	
3	Environmental requirements		
4			

- ❖ If yes, indicate the Conformity Assessment Schemes adopted for market entry (check all that apply)
 - ***certification Type Approval***
 - ***self-declaration Submission of Declaration of Conformity***
 - ***third party declaration (through conformity assessment body) : Any Type Approval issued in ITU Region 1, other countries as long as frequency use is with country assignment***
 - labeling : **Not yet adopted any**
 - use of proxies such as IEC, FCC, ETSI, etc **yes**

- others (specify) _____

- ❖ Are these Conformity Assessment Schemes based on the ISO/CASCO set of Guidelines and standards? No
- ❖ If there is legislation and regulation dealing with ICT and telecom products and services and related areas such as electrical safety and environmental issues, how is it applied? Is it compulsory or voluntary? *It is compulsory, but enforcement is still a challenge due to capacity constraints*
- ❖ Where such legislation and regulation exists does it permit delegation of authorities to foreign entities under arrangements such as Mutual Recognition Agreements (MRAs) on Conformity Assessment e.g. for certification? *The Regulations allow Approval by Reference, but no delegation has been done to any other body.*
- ❖ Is there a national standards system and national standards development organisation (SDOs)? (indicate YES/NO in the following table)

	YES	NO
National standards system	✓ (BOBS)	
SDO	✓ (BOBS)	

- ❖ Where such SDOs exist are they committed to adoption of international standards wherever possible rather than developing national standards which may deviate from the international ones? **YES**
- ❖ Is there Metrology legislation and any National Institute of Metrology responsible to maintain the national measurement standards in the country; to establish and maintain their metrological traceability to the units of the International System of Units (SI)?

	YES	NO
Metrology legislation exists?		

National Metrology institute for national measurement and their traceability to international units		
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- ❖ If Metrology legislation exists in your country does it permit delegation of authorities to foreign entities under arrangements such as MRAs e.g. for calibration of equipment?

- ❖ Is there any Institution responsible for the Development of conformity assessment programs?

- ❖ If, YES, which areas of conformity assessment does it cover? (indicate all areas that apply)

	Areas covered by conformance assessment programs	YES	NO	M*	V^
1	Products				
2	Processes				
3	Services				
4	Personnel				

* indicate whether conformance assessment in this area is mandatory (M)

^ indicate whether conformance assessment in this area is voluntary (V)

What are these Institutions involved in the development of conformance assessment programs?

(name all) : **Botswana Bureau of Standards (BOBS),**

- ❖ What are the possible resources from National/Regional/International Funds to assist private and public sector to invest in infrastructure, e.g., Labs and human resources? (list all): **FDI, National Budget, PPPs**

- ❖ Is there legislation and regulation which establishes importation requirements for products and services such as ICTs including telecom products, electrical safety and environmental aspects: **YES**
- ❖ How is importation control of the products entering the country/region enforced e.g. at point of entry, spot checks and post market surveillance? **Point of entry, spot checks**
- ❖ Is there a post market surveillance, audit and enforcement regime established for products entering the country/region, and deployed in the country/region, and a schedule of punishments for infractions? **Yes, the Regulator does surveillance to ensure that the products that are being distributed have been through the approval process.**
- ❖ What actions, if any, are undertaken to identify counterfeit products and what actions are taken to remove such products from the marketplace and to deal with parties responsible for bringing them into, or deploying them in the country/region?

- counterfeit products are identified by (list all means):

Same IMEI Number, battery not original, equipment indicating a different name when switched on, no documentation on the manufacturer of the product.

- *the actions taken to remove counterfeit products include (list/state all):
surveillance, spot check, complaint from consumer*

- action taken against parties that bring into and deploy counterfeit products include (list all action):

Equipment confiscation, suspension of license

4. Accreditation

- ❖ Is there any Accreditation Body (ISO/IEC 17011) (not only in ICT)?

No

- ❖ In which field/s does it accredit organisations and with what scopes?

	Accreditation body	Field (e.g. telecom)	Scope (e.g. products/services/personnel etc.)
1			
2			
3			
4			

5. Laboratories

- ❖ What are the Laboratories identified in the country/region and what service levels do they provide (e.g. 1st, 2nd and 3rd party testing)? ***None, currently the Communication Regulator is in talks with some labs in the region for possible recognition***
- ❖ Are they (Labs) Accredited (ISO 17025) or is there any kind of peer evaluation of the lab?
- ❖ What are the fields and scopes of such Labs?
- ❖ How is the laboratory funded? (by Government, Organisations and Individuals). Indicate all that apply

6. Certification Bodies And Marking

- ❖ What Certification Bodies (ISO/IEC 17065) are in the country, where are they located?
- ❖ What are the fields and scopes of the Certification Bodies? (e.g. ICTs and Telecom)

- ❖ What Marks of conformity are on products in your country/region that are trusted – i.e. trusted Marks e.g. EU, FCC, IEC etc *ICASA, CE, FCC however, we do not rely on marks only, we require submission of certificates from the issuers of these larks*

SECTION TWO

1. Demographics

- ❖ Population (Total): 2,101,715
- ❖ Population (Female): 1,075,125
- ❖ Population (Male): 1,026,589
- ❖ Population Growth Rate: 0.09
- ❖ Birth Rate:
- ❖ Death Rate:
- ❖ Life Expectancy:
- ❖ Life Expectancy (Female):
- ❖ Life Expectancy (Male):
- ❖ Fertility Rate:
- ❖ Infant Mortality Rate:
- ❖ Literacy rate: 93%
- ❖ Age Structure
- ❖ 0-14 years:
- ❖ 15-64 years:
- ❖ 65 and above:
- ❖ Native Languages:
- ❖ Official Languages:

2. Economy

- ❖ Gross Domestic Product (GDP): *17.33 billion USD (2011)*
- ❖ GDP Growth: *5.7% annual change (2011)*
- ❖ GDP per capita: *8,532.62 USD (2011)*
- ❖ GDP by sector:

- ❖ Inflation: 5.8 %
- ❖ Unemployment Rate: 17.8%
- ❖ Main industries:
- ❖ Exports (value):
- ❖ Export Goods:
- ❖ Main Export Partners:
- ❖ Imports (value):
- ❖ Import Goods:
- ❖ Main Import Partners:
- ❖ Foreign Direct Investment (value):
- ❖ Gross External Debt (country specific):
- ❖ Public Debt (country specific) :
- ❖ Foreign Reserves (country specific):

NAMIBIA CONTRIBUTIONS

SECTION ONE

Geography and ICT Indicators

- Total Area: *824,292 sq km*
- Highest point: *Konigstein 2,606 m*
- Lowest point: *Atlantic Ocean 0 m*
- Penetration of Telecoms and Internet including wireless, broadband and ICTs: *114% of population, 2012*
- Number of voice subscribers (fixed): *171,249*
- Number of voice subscribers (mobile): *2,435,442*
- Penetration of voice subscribers (fixed): *8% of population*
- Penetration of voice subscribers (mobile): *113.6% of population*
- Number of internet subscribers: *754,640*
- Number of wireless internet subscribers: *682,803*
- Number of fixed internet subscribers: *71,837*
- Number of internet subscribers using mobile phones for access: *not available*
- Penetration of internet subscribers: *36.62% of population*
- Penetration of fixed internet subscribers: *3.4%*
- Penetration of wireless internet subscribers: *32.32% of population*
- % of telecommunications coverage: *113.6%*
- % of 3G/wireless broadband coverage: *not available*
- % of coverage for fixed access infrastructure (fibre and copper): *not available*
- Penetration of internet in rural areas: *not available*
- Penetration of voice in rural areas: *not available*

Service Providers

- Number of mobile network operators: *2*
- Number of fixed telephony operators: *1*
- Number of mobile network operators providing 3G (WCDMA, HSDPA, HSPA+) services: *2*

- Number of service providers deploying WiMAX: 3
- Number of service providers deploying LTE: 2 (*WTN and MTC*)
- Number of service providers providing Internet: 13
- Number of fixed Internet service providers: 1
- Number of wireless Internet service providers: 13
- Number of telecom infrastructure providers: 14
- Number of telecom infrastructure providers (fibre/copper): 2
- Number of telecom infrastructure providers (tower): 4
- Number of foreign owned telecom service providers: 0

Regulatory Framework and Institutions (Per Country)

- ❖ Is there any regulatory framework and regulation which establishes technical requirements for products and services to be legally imported and deployed in the marketplace? If yes, what products/services/areas does it cover? (indicate all that apply)

The Type Approval Regulations however still in draft form. Regulations were published in the Government Gazette No. 31 May 2013 for public comments.

The Proposed Regulations Setting out Minimum Technical Standards for DTT Set-top Box Decoders as published for public comments Government Gazette No. 5179, General Notice No. 111 dated 19 April 2013. The Authority should still make a final decision regarding final publication of the Minimum Technical Standards for DTT Set top box Decoders.

	<i>Service/product/areas covered</i>	<i>YES</i>	<i>NO</i>
<i>1</i>	<i>ICT/telecom products and services (i.e. network and terminal equipment)</i>		
<i>2</i>	<i>Electrical/electronic apparatus</i>		
<i>3</i>	<i>Environmental requirements</i>		
<i>4</i>			

- ❖ *If yes, indicate the Conformity Assessment Schemes adopted for market entry (check all that apply)*

- *certification*
- *self-declaration*
- *third party declaration (through conformity assessment body)*
- *labelling*
- *use of proxies such as IEC, FCC, ETSI, etc*
- *others (specify) _____*

Unable to comment as the Type Approval Regulations are still in draft form in the public comment phase.

- ❖ Are these Conformity Assessment Schemes based on the ISO/CASCO set of Guidelines and standards?

See above

- ❖ If there is legislation and regulation dealing with ICT and telecom products and services and related areas such as electrical safety and environmental issues, how is it applied? Is it compulsory or voluntary?

It is provided for in the empowering legislation of the Authority, the Communications Act No. 8 of 2009 and in Regulations published by the Authority as prescribed by the Act. Section 38 (10) (h) of the Act provides that the Authority may impose specific obligations and requirements on a licensee regarding masts, towers or other facilities including requirements relating to the environmental or aesthetic impact of such facilities. Section 67 of the Act provides that Any person who constructs, equips or carries on any railway or works for the supply of light, heat or power by means of electricity, must conform to the requirements of a carrier for the prevention of any of its telecommunications facilities or works being injuriously affected thereby, and must, before commencing the construction of any such railway or works, give one month's notice in writing to the carrier of his or her intention to commence the construction, and must furnish the carrier with a plan of the proposed railway or works, together with particulars showing the manner and position in which the same are intended to be constructed, executed and carried on and such further information relative to the proposed railway or works as the carrier may require.

The Application is compulsory as these are laws and regulations to which all operators and licensees are subject to (mandatory provisions).

- ❖ Where such legislation and regulation exists does it permit delegation of authorities to foreign entities under arrangements such as Mutual Recognition Agreements (MRAs) on Conformity Assessment e.g. for certification?

No

- ❖ Is there a national standards system and national standards development organisation (SDOs)? (indicate YES/NO in the following table)

	YES	NO
National standards system		
SDO		

Yes. The Namibian Standards Institution (NSI) established by the Standards Act 18 of 2005. The NSI is established to promote standardization and quality assurance in the industry, commerce and the public sector in Namibia, with the aim of improving product quality, industrial efficiency and productivity, and to promote trade, so as to achieve optimum benefits for the public of Namibia in general. The object of the NSI is also to liaise with, and obtain membership of, international and regional standards bodies that have objects similar to those of the NSI, and to achieve compliance with any internationally or regionally agreed instruments or organizations regarding standardization, of which bodies Namibia is a member or is intending to become a member.

- ❖ Where such SDOs exist are they committed to adoption of international standards wherever possible rather than developing national standards which may deviate from the international ones?

Refer Question to the NSI. As far as ICT is concerned, the Authority is committed to adopt the ITU standards where applicable.

- ❖ Is there Metrology legislation and any National Institute of Metrology responsible to maintain the national measurement standards in the country; to establish and maintain their metrological traceability to the units of the International System of Units (SI)?

	YES	NO
Metrology legislation exists?		
National Metrology institute for national measurement and their traceability to international units		

The Authority is not involved with metrology. However, Namibia has a Trade Metrology Act, 1973, and the Metrology Amendment Act 17 of 2005.

- ❖ If Metrology legislation exists in your country does it permit delegation of authorities to foreign entities under arrangements such as MRAs e.g. for calibration of equipment?

Refer the question to the Metrology Advisory Board/ NSI. The Metrology Amendment Act 17 of 2005 provides in Section 7 that the Minister may, after consultation with the Board, enter into an agreement with any accredited body to be a metrology agency for the performance, subject to such conditions and requirements as the Minister may determine and on behalf of the director, of such functions under this Act relating to -

(a) the examination, approval, verification, calibration or certification of any measuring instrument; or

(b) the keeping, maintaining, comparison, adjustment, establishment or value of any national measuring standard,

As the Minister may consider necessary and specify in that agreement.

- ❖ Is there any Institution responsible for the Development of conformity assessment programs?

This is dealt with by the Namibian Standards Institution in terms of the Standards Act 18 of 2005.

- ❖ If, YES, which areas of conformity assessment does it cover? (indicate all areas that apply)

	Areas covered by conformance assessment programs	YES	NO	M*	V^
1	Products				
2	Processes				
3	Services				
4	Personnel				

* indicate whether conformance assessment in this area is mandatory (M)

^ indicate whether conformance assessment in this area is voluntary (V)

What are these Institutions involved in the development of conformance assessment programs?
(name all)

Not applicable

- ❖ What are the possible resources from National/Regional/International Funds to assist private and public sector to invest in infrastructure, e.g., Labs and human resources? (list all)

Not applicable

- ❖ Is there legislation and regulation which establishes importation requirements for products and services such as ICTs including telecom products, electrical safety and environmental aspects

The Type Approval Regulations however still in draft form. Regulations were published in the Government Gazette No. 31 May 2013 for public comments.

The Proposed Regulations Setting out Minimum Technical Standards for DTT Set-top Box Decoders as published for public comments Government Gazette No. 5179, General Notice No. 111 dated 19 April 2013. The Authority should still make a final decision regarding final publication of the Minimum Technical Standards for DTT Set top box Decoders.

Section 38 (10) (h) of the Communications Act 8 of 2009 provides that the Authority may impose specific obligations and requirements on a licensee regarding masts, towers or other facilities including requirements relating to the environmental or aesthetic impact of such facilities. Section 67 of the Act provides that Any person who constructs, equips or carries on any railway or works for the supply of light, heat or power by means of electricity, must conform to the requirements of a carrier for the prevention of any of its telecommunications facilities or works being injuriously affected thereby, and must, before commencing the construction of any such railway or works, give one month's notice in writing to the carrier of his or her intention to commence the construction, and must furnish the carrier with a plan of the proposed railway or works, together with particulars showing the manner and position in which the same are intended to be constructed, executed and carried on and such further information relative to the proposed railway or works as the carrier may require.

- ❖ How is importation control of the products entering the country/region enforced e.g. at point of entry, spot checks and post market surveillance?

Type Approval Regulations in development.

- ❖ Is there a post market surveillance, audit and enforcement regime established for products entering the country/region, and deployed in the country/region, and a schedule of punishments for infractions?

Type Approval Regulations in development.

- ❖ What actions, if any, are undertaken to identify counterfeit products and what actions are taken to remove such products from the marketplace and to deal with parties responsible for bringing them into, or deploying them in the country/region?
- counterfeit products are identified by (list all means):

- the actions taken to remove counterfeit products include (list/state all):

- action taken against parties that bring into and deploy counterfeit products include (list all action):

No final decision has been made by the Authority in this regard. Regulations still in the draft and in the public comment phase.

Accreditation

- ❖ Is there any Accreditation Body (ISO/IEC 17011) (not only in ICT)?

No

- ❖ In which field/s does it accredit organisations and with what scopes?

	Accreditation body	Field (e.g. telecom)	Scope (e.g. products/services/personnel etc.)
1			
2			
3			
4			

Laboratories

- ❖ What are the Laboratories identified in the country/region and what service levels do they provide (e.g. 1st, 2nd and 3rd party testing)?

Not applicable

- ❖ Are they (Labs) Accredited (ISO 17025) or is there any kind of peer evaluation of the lab?

Not applicable

- ❖ What are the fields and scopes of such Labs?

Not applicable

- ❖ How is the laboratory funded? (by Government, Organisations and Individuals). Indicate all that apply.

Not applicable

Certification Bodies and Marking

- ❖ What Certification Bodies (ISO/IEC 17065) are in the country, where are they located?

Not applicable

- ❖ What are the fields and scopes of the Certification Bodies? (e.g. ICTs and Telecom)

Not applicable

- ❖ What Marks of conformity are on products in your country/region that are trusted – i.e. trusted Marks e.g. EU, FCC, IEC etc

Not applicable

SECTION TWO

Demographics

- ❖ Population (Total): 2 113 077
- ❖ Population (Female): 1 091 165
- ❖ Population (Male): 1 021 912
- ❖ Population Growth Rate: 1.4
- ❖ Birth Rate: *CBR of 29.4 births per 1,000 people*
- ❖ Death Rate: *CDR of 10.7 per 1,000*
- ❖ Life Expectancy:
- ❖ Life Expectancy (Female): *Not available*
- ❖ Life Expectancy (Male): *Not available*
- ❖ Fertility Rate: Ave. number of children per women: 3.6
- ❖ Infant Mortality Rate: not available
- ❖ Literacy rate: 15+ years: 89
- ❖ Age Structure
- ❖ 0-14 years: 788 843
- ❖ 15-64 years: 1 216 893
- ❖ 65 and above: 107 341
- ❖ Native Languages: Oshiwambo, Nama/Damara, Afrikaans, Kavango, Otjiherero
- ❖ Official Languages: *English*

Economy, 2012

- ❖ Gross Domestic Product (GDP): 10.5% (GDP deflator, Annual percentage change)
- ❖ GDP Growth: 4.3%
- ❖ GDP per capita: *Current prices per capita: N\$49 215 per capita*
- ❖ GDP by sector: *see attached document*
- ❖ Inflation: *6.5% for 2012*
- ❖ Unemployment Rate: 27.4%

Main industries: Agriculture and forestry, Livestock Farming, Crop farming and forestry, Fishing and fish processing on board, Mining and quarrying, Diamond mining and other mining and quarrying.

- ❖ Exports (value): *N\$44 759 Million*
- ❖ Export Goods: *42.6%*
- ❖ Main Export Partners: *South Africa, United Kingdom, Angola, Belgium, Botswana, Canada, Spain, Switzerland, United States of America, Export Processing Zone*
- ❖ Imports (value): *N\$51 170 Million*
- ❖ Import Goods: *48.7%*
- ❖ Main Import Partners: *South Africa, Switzerland, China, United Kingdom, Germany, Zambia, Botswana, Netherlands, Singapore, Export Processing Zone.*
- ❖ Foreign Direct Investment (value): *0.7% in 2012*
- ❖ Gross External Debt (country specific): *8%*
- ❖ Public Debt (country specific): *17%*
- ❖ Foreign Reserves (country specific): *3 Months*