Establishment of Harmonized Policies for the ICT Market in the ACP Countries

# Regulatory accounting and cost modelling in Sub-Saharan Africa

## Central Africa
## Regional assessment

**HIPSSA**

Harmonization of ICT Policies in Sub-Saharan Africa




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# Foreword

Information and communication technologies (ICTs) are shaping the process of globalisation. Recognising their potential to accelerate Africa's economic integration and thereby its greater prosperity and social transformation, Ministers responsible for Communication and Information Technologies meeting under the auspices of the African Union (AU) adopted in May 2008 a reference framework for the harmonization of telecommunications/ICT policies and regulations, an initiative that had become especially necessary with the increasingly widespread adoption of policies to liberalise this sector.

Coordination across the region is essential if the policies, legislation, and practices resulting from each country's liberalization are not to be so various as to constitute an impediment to the development of competitive regional markets.

Our project to 'Support for Harmonization of the ICT Policies in Sub-Sahara Africa' (HIPSSA) has sought to address this potential impediment by bringing together and accompanying all Sub-Saharan countries in the Group of African, Caribbean and Pacific States (ACP) as they formulate and adopt harmonized ICT policies, legislation, and regulatory frameworks. Executed by the International Telecommunication Union (ITU), co-chaired by the AU, the project has been undertaken in close cooperation with the Regional Economic Communities (RECs) and regional associations of regulators which are members of the HIPSSA Steering Committee. A global steering committee composed of the representatives of the ACP Secretariat and the Development and Cooperation – EurepeAid (DEVCO, European Commission) oversees the overall implementation of the project.

This project is taking place within the framework of the ACP Information and Telecommunication Technologies (@CP-ICT) programme and is funded under the 9$^{th}$ European Development Fund (EDF), which is the main instrument for providing European aid for development cooperation in the ACP States, and co-financed by the ITU. The @CP-ICT aims to support ACP governments and institutions in the harmonization of their ICT policies in the sector by providing high-quality, globally-benchmarked but locally-relevant policy advice, training and related capacity building.

All projects that bring together multiple stakeholders face the dual challenge of creating a sense of shared ownership and ensuring optimum outcomes for all parties. HIPSSA has given special consideration to this issue from the very beginning of the project in December 2008. Having agreed upon shared priorities, stakeholder working groups were set up to address them. The specific needs of the regions were then identified and likewise potentially successful regional practices, which were then benchmarked against practices and standards established elsewhere.

These detailed assessments, which reflect sub-regional and country-specific particularities, served as the basis for the model policies and legislative texts that offer the prospect of a legislative landscape for which the whole region can be proud. The project is certain to become an example to follow for the stakeholders who seek to harness the catalytic force of ICTs to accelerate economic integration and social and economic development.

I take this opportunity to thank the European Commission and ACP Secretariat for their financial contribution. I also thank the Economic Community of West African States (ECOWAS), West African Economic and Monetary Union (UEMOA), Economic Community of Central African States (ECCAS), Economic and Monetary Community of Central Africa (CEMAC), East African Community (EAC), Common Market for Eastern and Southern Africa (COMESA), Common Market for Eastern and Southern Africa (COMESA), Southern African Development Community (SADC), Intergovernmental Authority on Development (IGAD), Communication Regulators' Association of Southern Africa (CRASA), Telecommunication Regulators' Association of Central Africa (ARTAC), United Nations Economic Commission for Africa (UNECA), and West Africa Telecommunications Regulators' Association (WATRA), for their contribution to this work. Without political will on the part of beneficiary countries, not much would have been achieved. For that, I express my profound thanks to all the ACP governments for their political will which has made this project a resounding success.

Brahima Sanou

BDT Director

# Acknowledgements

This document represents the achievement of a global activity carried out under the HIPSSA project, officially launched in Addis Ababa in December 2008. Regional assessments were carried out as part of the activity and this is the report for the Central Africa region.

In response to both the challenges and the opportunities of information and communication technologies' (ICTs) contribution to political, social, economic and environmental development, the International Telecommunication Union (ITU) and the European Commission (EC) joined forces and signed an agreement aimed at providing "Support for the Establishment of Harmonized Policies for the ICT market in the ACP", as a component of the Programme "ACP-Information and Communication Technologies (@CP-ICT)" within the framework of the 9th European Development Fund (EDF). i.e., ITU-EC-ACP Project.

This global ITU-EC-ACP project is being implemented through three separate sub-projects customized to the specific needs of each region: sub-Saharan Africa (HIPSSA), the Caribbean (HIPCAR), and the Pacific Island countries (ICB4PAC).

As members of the HIPSSA Steering Committee co-chaired by the African Union's Commission (AUC) and the ITU, all the Regional economic communities (RECs) especially Economic Community of West African Countries (ECOWAS), Southern African Development Community (SADC), Economic Community of Central African States (ECCAS), and East African Community (EAC) provided guidance and support to the consultants. Mr Armand Lichambany, regional expert for Central Africa, was responsible for the assessment and compilation of the regional report for Central Africa under the guidance of Ms Saïda Ouederni.

ITU would like to thank all the regional regulatory associations in Africa and the telecommunication ministries, regulators, academia, civil society, operators and the Groupe Speciale Mobile Association (GSMA) for their hard work and commitment in producing the contents of the final report.

The active involvement of all of these stakeholders made it possible to produce a document that reflects the requirements and conditions of Central Africa, while also representing international best practice.

The activities have been implemented by Ms. Ida Jallow, HIPSSA Senior Project Coordinator (responsible for the coordination of the activities in sub-Saharan Africa) and Mr. Sandro Bazzanella, ITU-EC-ACP Project Manager (responsible for the management of the whole project covering sub-Saharan Africa, the Caribbean and the Pacific). Overall support came from Ms. Hiwot Mulugeta, HIPSSA Project Assistant, and Ms. Silvia Villar, ITU-EC-ACP Project Assistant. The work was carried out under the overall direction of Mr. Cosmas Zavazava, Chief, Project Support and Knowledge Management (PKM) Department. The document has further benefited from the comments of the ITU Telecommunication Development Bureau's (BDT) Regulatory and Market Environment Division (RME), particularly Ms. Carmen Prado-Wagner, Senior Programme Officer Economist. Support was provided by Mr Marcelino Tayob, Senior Advisor at the ITU Regional Office for Africa, and Mrs Asenath Mpatwa, ITU Senior Advisor. The team at ITU's Publication Composition Service was responsible for its publication.

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# Introduction

This assessment report, which is in respect of the Central Africa Sub-Region, relates to the ITU-EC joint project for "Harmonization of ICT Policies in Sub-Sahara Africa" (HIPSSA) which aims at developing and promoting harmonized policies and regulatory guidelines for the ICT market as well as building human capacity in the field of ICT.

Within the framework of its joint project with the EU, ITU is responding to the needs of HIPSSA beneficiaries and its members by providing regional organization with an up-to-date review of regulatory practices regarding regulatory accounting and cost modeling in their respective regions identifying trends on which they could build a common approach on regulatory auditing and cost modeling.

Based on this assessment, updated training material will be developed, delivered and embedded into the respective networks of regional associations of regulators and ITU Centers of Excellence to ensure a sustainable mechanism of delivery.

The present assessment report has been prepared by Mr. Armand Lichambany who was contracted under phase one of the HIPSSA Project as the Central Africa Regional Expert to carry out a regional assessment study on costing strategies and cost model application and processes in the Central African sub-region with the terms of reference given below. The assessment study was undertaken with close guidance of Ms Saida Ouederni who was contracted as the International Expert under the project and the HIPSSA Project Team.

The assessment report is divided into 4 main parts namely:

Part 1 – Main findings and recommendations,

Part 2 – Legal and regulatory framework for tariff regulation,

Part 3 – Cost accounting and regulatory auditing, and

Part 4 – Costing tools and cost model development.

Part 1 provides a summary of the main findings of the regional assessment as analyzed in Parts 2, 3 and 4.

Special thanks for the useful guidance, appropriate interventions and assistance provided throughout the assessment period goes to Ms. Saida Ouederni, and the HIPSSA Project Team members including Mr. Sandro Bazzanella, Ms. Carmen-Prado Wagner, Mr. Marcelino Tayob, Ms. Asenath Mpatwa, Ms. Ida Jallow and Ms. Hiwot Mullugeta among others.

The questionnaire regarding the data collection has been submitted to the National Regulatory Agencies (NRA) of all the nine countries of Central Africa: Burundi, Cameroon, Central Africa Republic (CAR), Chad, Congo, Democratic Republic of Congo (DRC), Equatorial Guinea (EG), Gabon and Sao Tome.

Part 1

# Part 1 – Main findings and recommendations

## 1.1 Main findings

The questionnaire has been filled by 8 countries out of 9, which represents a rate of 88.9%.

Four countries have concerns in data collection due to lack of will from operators (50%), lack of legal basis (25%) and difficulty to provide the relevant data (25%).

The survey for the Democratic Republic of Congo (DRC) has not been completed due to the long delay during the election period.

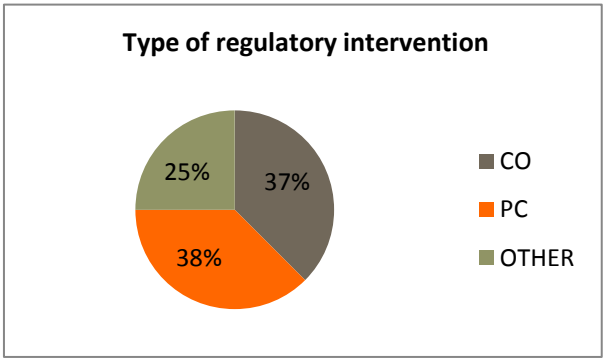
Based on a request from the ITU to conduct a complementary study with regard to Cost Accounting and Cost Modeling in sub-Sahara Africa with a view to presenting the operators' perspective and opinions, the GSMA carried out a survey from November 24th, 2011 to January 11th, 2012. Participation by operators in the study was voluntary and individual operators' replies have been kept confidential for competitive reasons.

The survey conducted by GSMA has been done for Airtel, Atlantique Telecom (Etisalat Group), MTN, Orange, Vodacom and Vodafone. The answers to the questionnaire were provided by the Mobile Operators of Central African Republic, Chad, Democratic Republic of Congo, Gabon and Congo (Brazzaville).

The sections below present the summary of the main findings of the study conducted for the Central African NRAs as well as for the Mobile Operators for that region.

### *1.1.1 Strategy of regulatory intervention*

**Type of regulatory intervention**



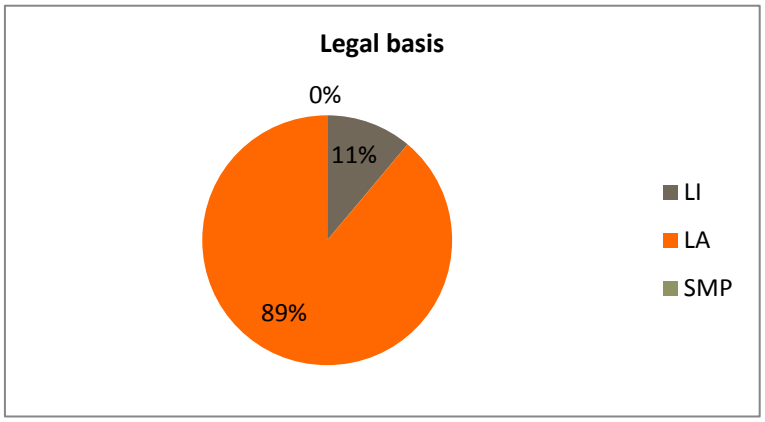

*Graphic 1: Type of regulatory intervention in Central Africa*

*CO : cost orientation, PC : price cap , RM : retail minus .*

**Comments:**

- 37% of NRAs use the Cost Orientation for the regulatory intervention and 38% of them use the Price Cap;
- 25% of NRAs use other methods.

**Legal basis**



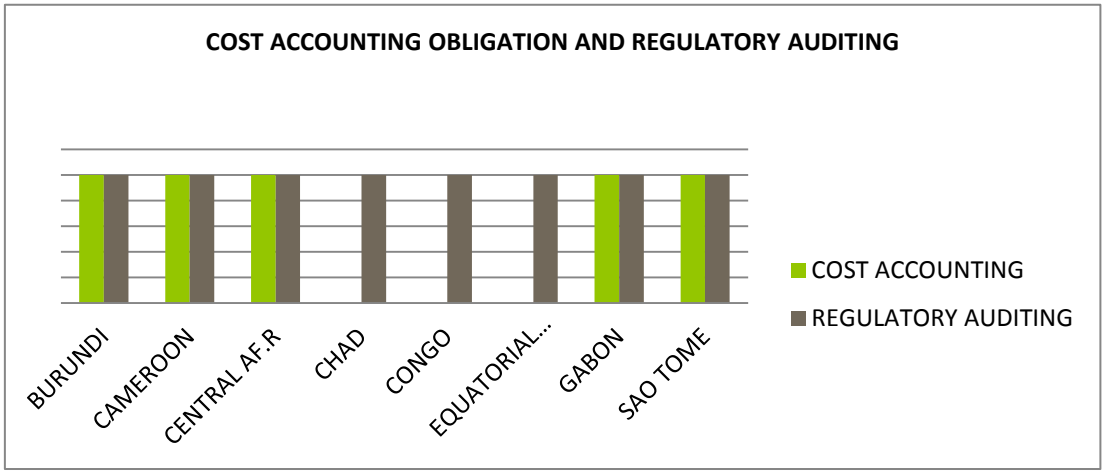

*Graphic 2: Legal basis*

*Li : license, La : law, SMP : significant market power*

**Comments:**

- 89% of the NRAs use the Law for the regulatory intervention
- 11% of them refer to the Mobile Operator Licenses.

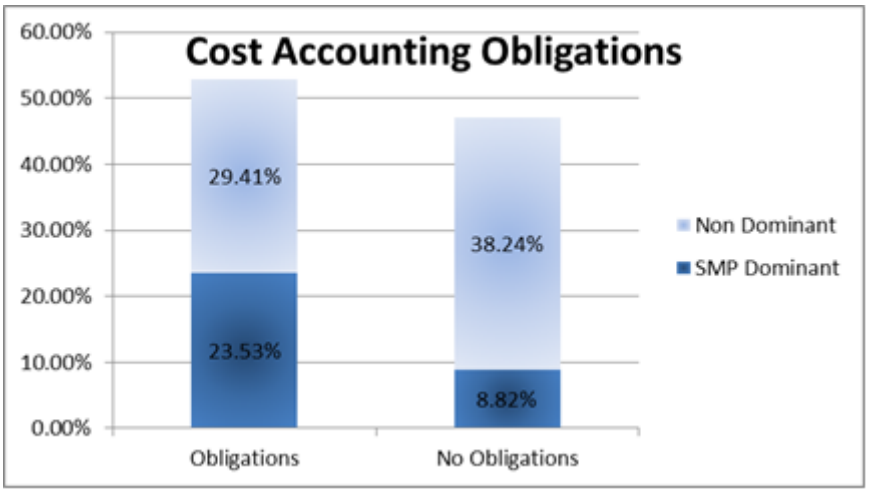
### *1.1.2 Cost accounting obligation and regulatory auditing*




*Graphic 3: Level of cost accounting obligation and regulatory auditing in Central Africa*

**Comments:**

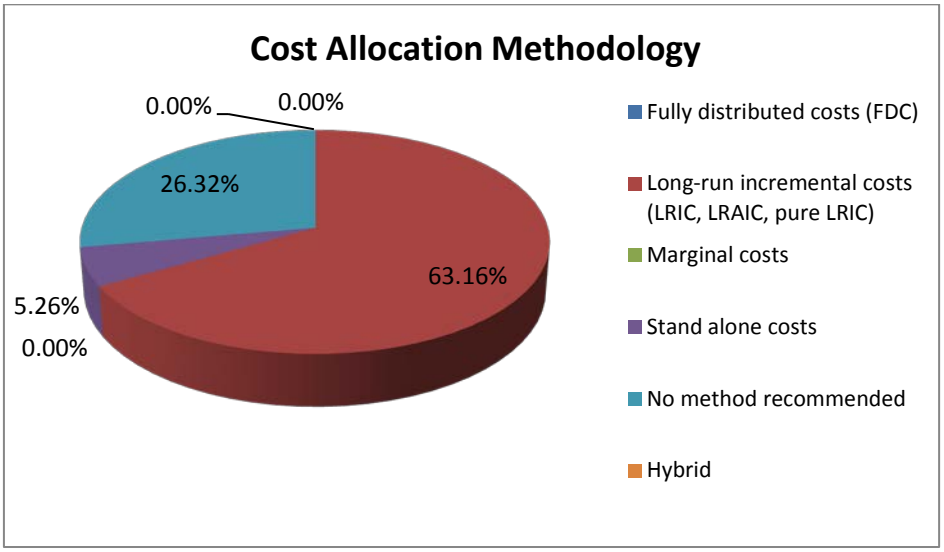
- 63% of NRAs in Central Africa impose cost accounting obligations;
- Except for Chad and Equatorial Guinea where there is no legal basis regarding the cost accounting, all the countries relies to the law.
- 100% of NRAs are planning to conduct a regulatory auditing including those which do not have legal basis.
- The graphic below presents the same indicator measured by GSMA during the Operator survey on the Regulatory Auditing and Cost Modeling in Sub-Sahara Africa, carried out from November 24th, 2011 to January 11th, 2012.




*Graphic 4: Cost Accounting obligations for dominant and non-dominant operators (source: GSMA survey)*

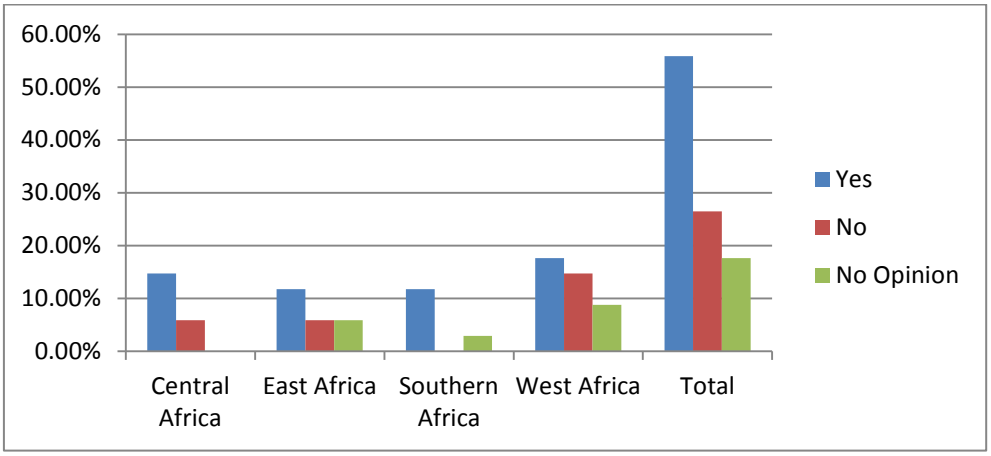
**Comments:**

- 52% of Mobile Operators are subjected to the Regulatory cost accounting obligations and 48% of them do not have these obligations;
- 32% of Mobile Operators are identified as Dominant or having SMP;
- 68% are Non dominant;
- The Mobile Operators which have some form of cost accounting obligations use various Cost Allocation Methodologies (CAM) in respect of the NRA requirements. As reflected in graphic 5 below, the Long-run incremental costs are used at 63%.



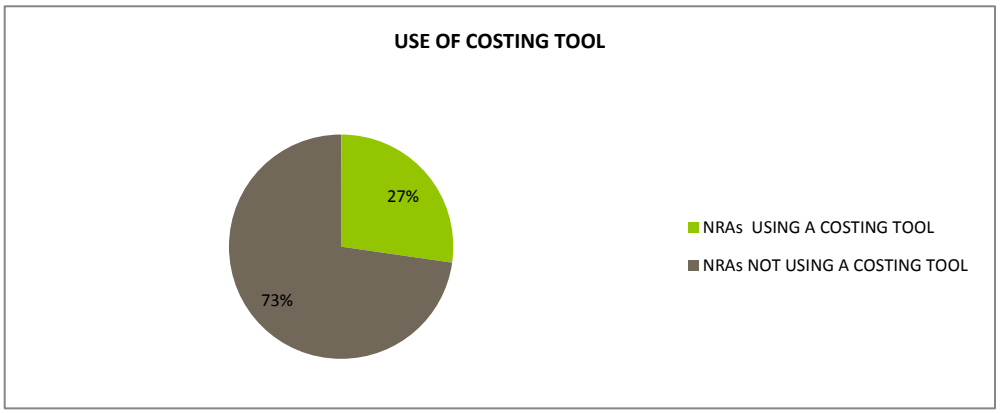

*Graphic 5: Cost allocation methodology required by NRA's (source: GSMA survey)*

- a majority of operators were in agreement that the requirement for cost accounting fostered competition ;
- 15% of Mobile Operators in Central Africa are not satisfied with the manner in which the cost accounting obligations were being introduced or imposed by the various NRA's ;
- As shown in the graphic 6 below, the tendency is the same for the other regions and, in total, more than half of the respondents were not satisfied.




*Graphic 6: Operator's views regarding whether cost accounting requirements foster competition (source: GSMA survey)*

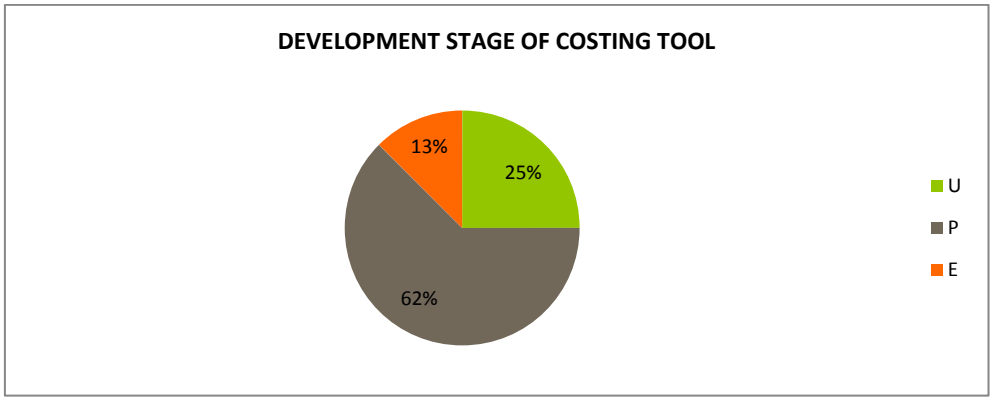
### 1.1.3 Status and development stage of costing tools




*Graphic 7: Level of use of costing tool in Central Africa*

**Comments:**

- 27% of NRAs in Central Africa use a costing tool;
- 73% of them do not use any tool due to lack of resources or skills.



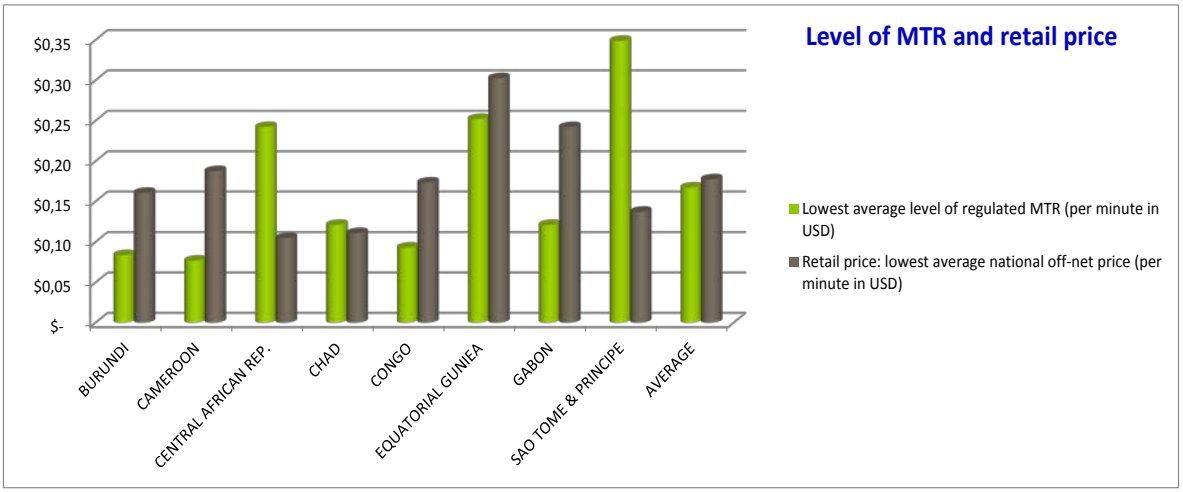

*Graphic 8: Level of use of costing tool in Central Africa*

*E: existing, U: under development, P: Planned*

**Comments:**

- One NRA in Central Africa (Congo) uses an existing costing tool. The rate related to the use of the existing costing tool (among countries using a costing tool) is 13%.
- Costing tool is currently under development in 2 countries (Chad and Burundi), representing a rate of 25% (among countries using a costing tool).
- 62% of the NRAs are planning to develop a costing tool within the next 12 months.

### *1.1.4 Level of Mobile Termination Rate (MTR) and retail price*

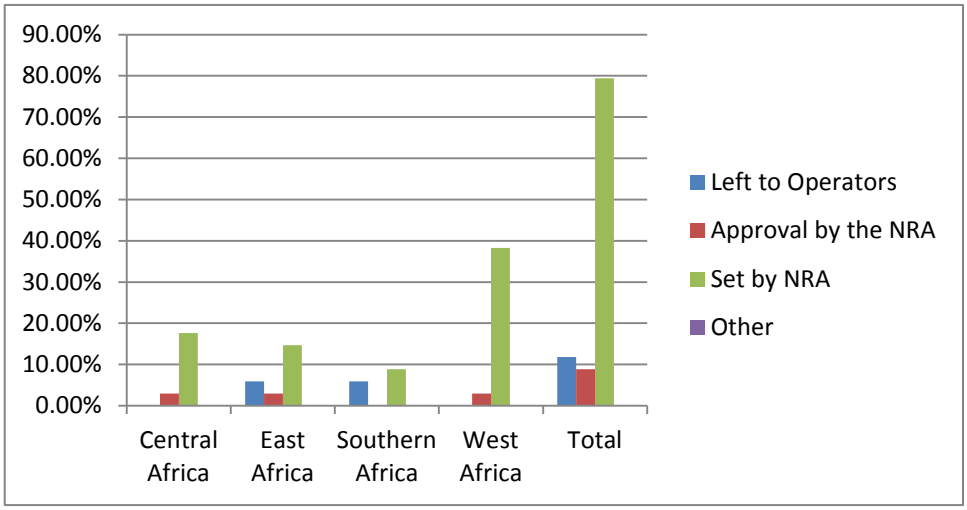



*Graphic 9: Level of MTR and Retail price in Central Africa*

**Comments:**

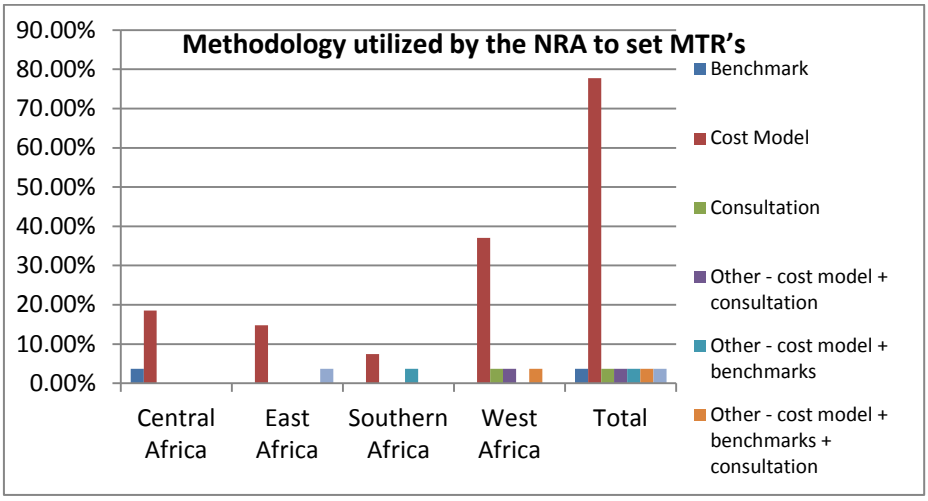
- In order to compare MTR and retail price levels Central Africa, all the national currencies have been converted into USD currency;
- The average regulated MTR for Central Africa is USD 0.17 per minute;
- The average retail price for Central Africa is USD 0.18 per minute;

- 3 countries in Central Africa have high MTR in respect with Retail price: Sao Tome (61%), CAR (57%) and Chad (8%). The high MTR rates for these countries result from the dominant position in the market (Sao Tome: one Mobile Operator only) or lack of regulatory basis. However, the NRAs from the 3 countries are currently harmonizing their tariffs in order to reverse this tendency.
- The same parameter measured by the GSMA shows that in Central Africa, in more than 80%, the mobile termination rates (MTR's) are set by NRAs. That tendency is the same in the whole Sub Saharan Africa. The graphic 10 below presents an Overview of how mobile termination rates are set.



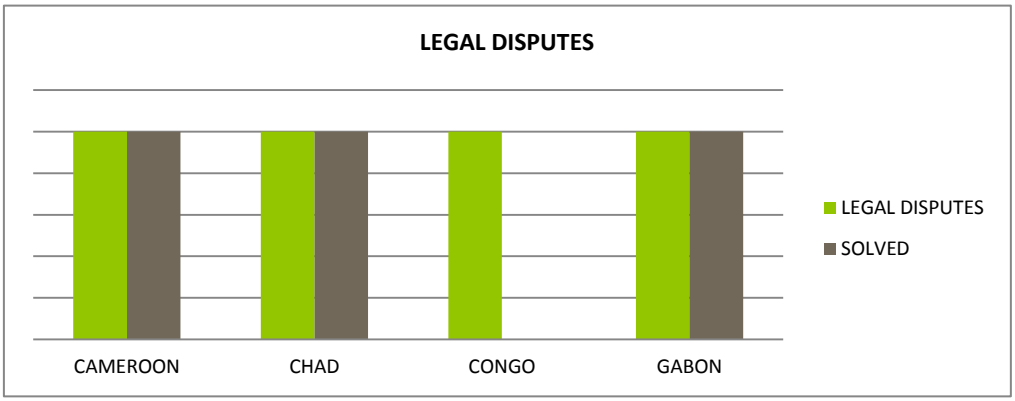

*Graphic 10: Overview of how mobile termination rates are set (Source: GSMA survey)*

- The graphic 11 below illustrates the methodology utilized by the various NRA's in order to establish the MTR's. This indicates that most NRA's utilize or have made use of some form of cost-modeling at more than 75% to establish MTR.




*Graphic 11: Methodology utilized by the NRA to set MTR's (Source: GSMA survey)*

### 1.1.5 Legal disputes

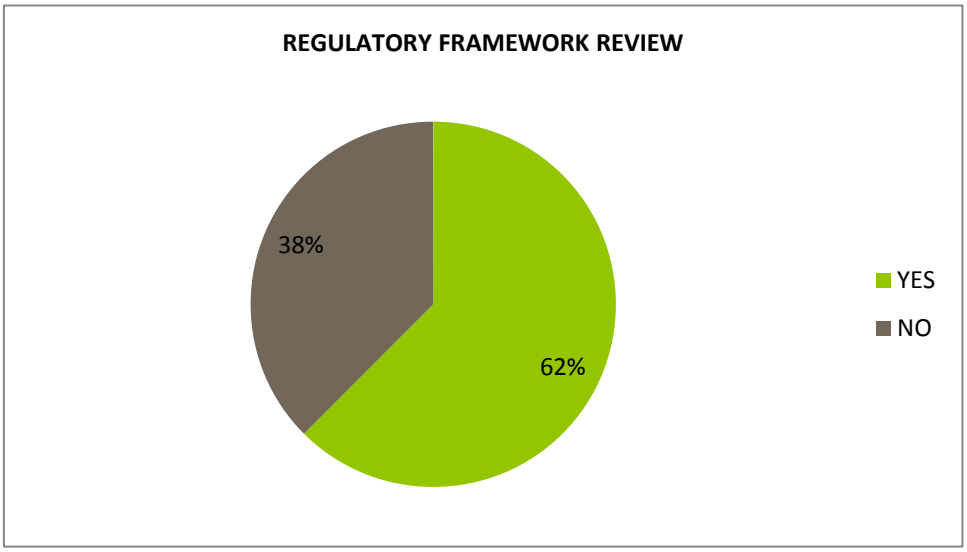



*Graphic 12: Status of legal dispute in Central Africa*

**Comments:**

- 50% of NRAs faced legal disputes between Mobile Operators;
- 3 NRAs involved in the arbitration of the legal disputes solved them while one NRA (Congo) had not sorted them out yet.

### 1.1.6 Foreseen changes in regulatory framework

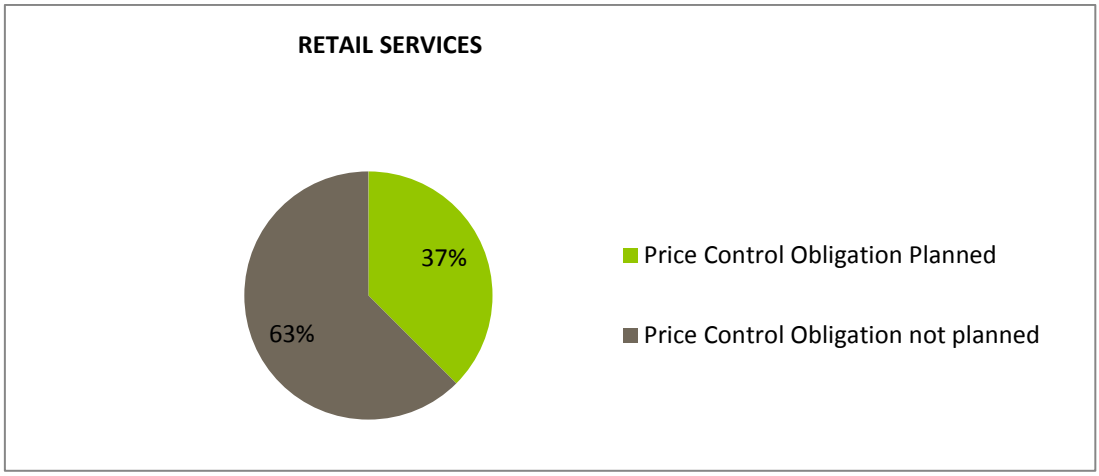



*Graphic 13: Status of the regulatory framework review in Central Africa*

**Comments:**

- 62% of the NRAs have planned to review their regulatory frameworks;
- 38% of the NRAs did not plane to review their regulatory frameworks. The main reasons are lack of skills and resources in the administration.

### 1.1.7 Price control obligations of retail services

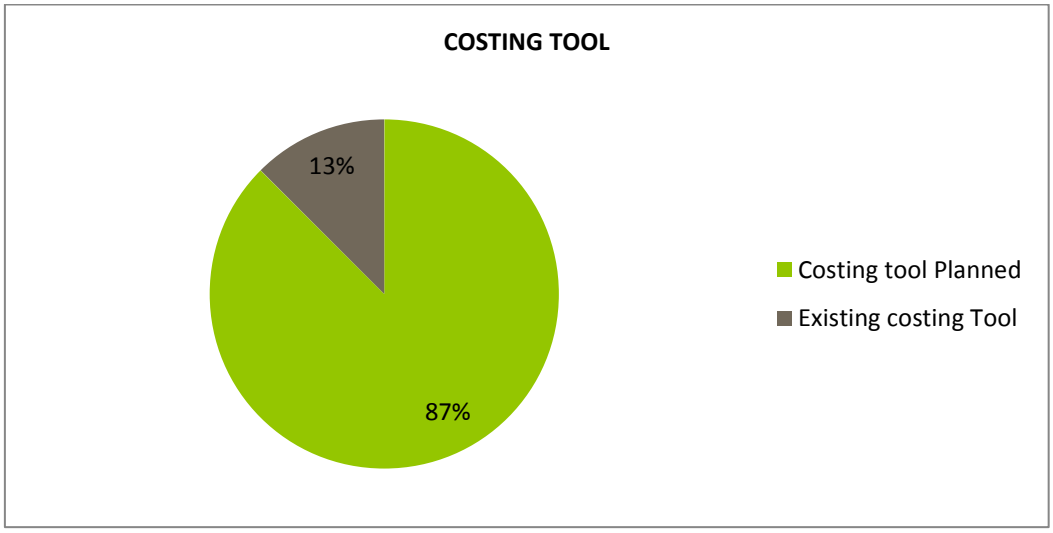



*Graphic 14: Status of the price control obligation and retail services in Central Africa*

**Comments:**

- 63% of the NRAs have planned to set up the price control obligations for the retail services. The main retail services planned are fixed voice, mobile voice, fixed data, mobile data;
- 37% of the NRAs have not planned it yet due to lack of skills and resources.

### 1.1.8 Status of the use of a costing tool




*Graphic 15: Status of the use of a costing tool in Central Africa*

**Comments:**

- 87% of the NRAs have planned to use a costing tool;
- Only one NRA (Congo) uses an existing cost modeling tool.

### 1.1.9 Anticipated regulatory strategies for new services and associated challenges

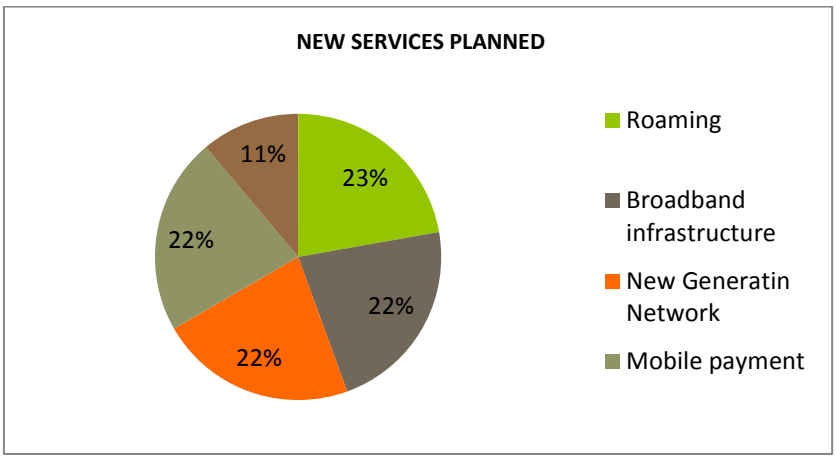
The following table shows the list of countries which have planned the regulatory strategies for new services:

| Countries | Status |
|---|---|
| Burundi | N/R |
| Cameroon | N/R |
| CAR | N/R |
| **Chad** | **Broadband infrastructure**<br>**3G** |
| **Congo** | **Roaming**<br>**Broadband infrastructure**<br>**Next generation network** |
| **Equatorial Guinea** | **Roaming**<br>**Broadband infrastructure**<br>**SMS**<br>**Mobile payment** |
| **Gabon** | **Roaming**<br>**Broadband infrastructure**<br>**Next generation network**<br>**Mobile payment** |
| Sao Tome | N/R |

*Table 1: Services planned by country*

- 50% of the NRAs in Central Africa are planning the regulatory strategies for the provision of new telecommunication/ICTs services.
- The main interest for that strategy is due to the growing use by the population of these new services in the region.

The distribution of planned new services for the whole Central African region is described in the Graphic 16 below.




*Graphic 16: Services planned by country*

**Comments:**

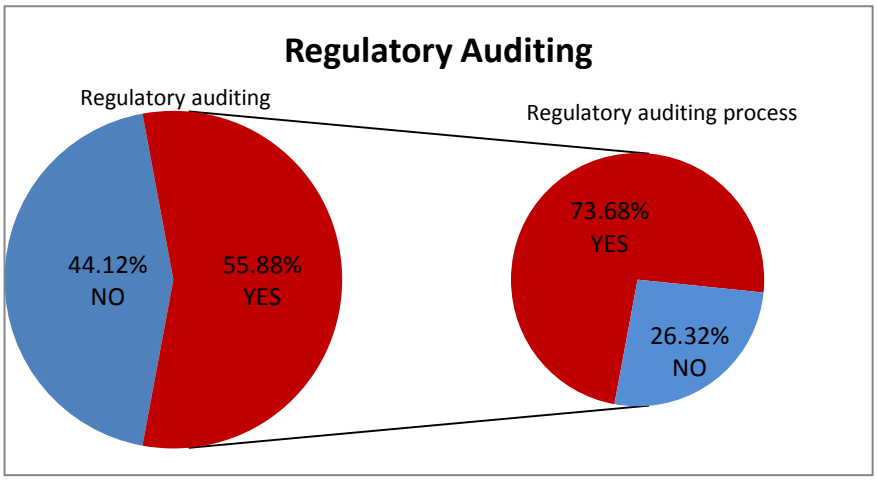
- Roaming, Broadband infrastructure, NGN and Mobile payment are the flagship services for the Mobile Operators in Central Africa;
- The NRAs focus their interest in planning of the regulatory strategies for the new services above mentioned.

### *1.1.10 Cost accounting*

- 2 countries (Sao Tome and Equatorial Guinea) did not respond to that section in the questionnaire (25%). However, the rest of the Central African countries are planning to implement a Cost accounting system (75%). Mainly, lack of skills and resources are the main challenges.
- In Cameroon the obligation of applying cost accounting is included in the new law on electronic communications adopted in December 2010. The implementation framework is being developed.

### *1.1.11 Regulatory auditing*

- Regulatory Auditing is not done by all the NRAs in Central Africa.
- Cameroon, Chad and Sao Tome are planning to set up the Cost Accounting and Regulatory Auditing for few or all the retail services.
- In the Operator survey on the Regulatory Auditing and Cost Modeling in Sub-Sahara Africa[1], the GSMA examined the regulatory framework regarding regulatory audits. Over a half of the respondents indicated that Mobile Operators in Central Africa were subjected to mandatory regulatory audits.
- The graphic 17 below presents the results of the survey regarding the requirement of Regulatory auditing.




*Graphic 17: Regulatory auditing requirements (Source: GSMA survey)*

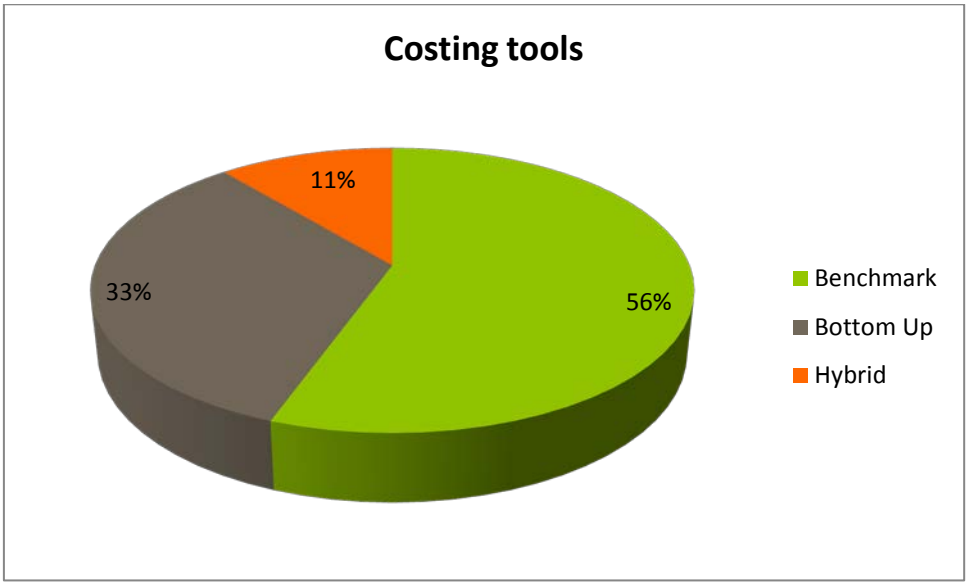
[1] Survey carried out by GSMA from November 24th, 2011 to January 11th, 2012 in coordination with this HIPSSA project.

- 56% of Mobile Operators, who responded the GSMA survey, are subjected to mandatory regulatory audits in Central Africa.
- In the regimes where audits are mandatory, 26% of Mobile Operators did not have a specific auditing process or methodology to put in place, meaning that the NRA didn't provide specifications and guidelines to operators.
- "All the Mobile Operators, who responded the GSMA survey, expressed their concern not only with respect to the potentially time-consuming nature of the audits but also with potential implications regarding the confidentiality of the information audited."

### *1.1.12 Costing tools and cost model development*

| Countries | Cost Model |
|---|---|
| Burundi | Benchmark |
| Cameroon | Bottom up<br>Benchmark |
| CAR | Benchmark |
| Chad | Bottom up<br>Benchmark |
| Congo | Hybrid |
| Equatorial Guinea | N/R |
| Gabon | Bottom up<br>Benchmark |
| Sao Tome | N/R |

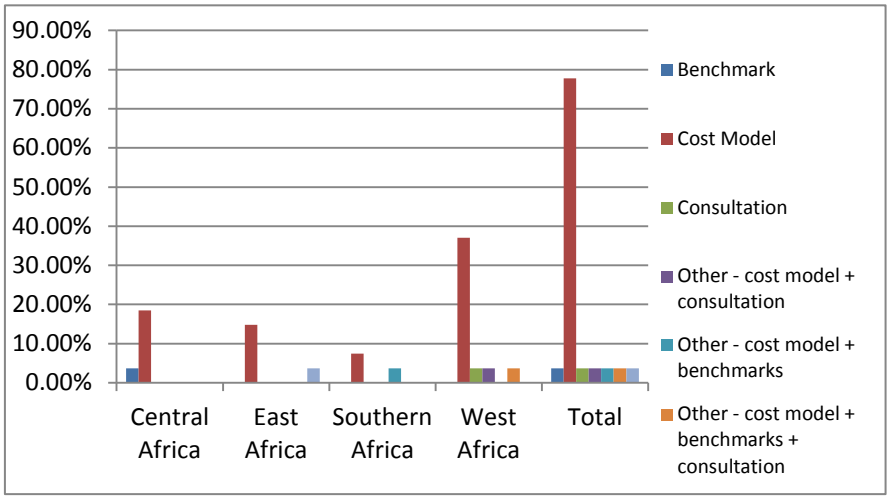
*Table 2: Costing tools used by countries*




*Graphic 18: Distribution of the costing tools in Central Africa*

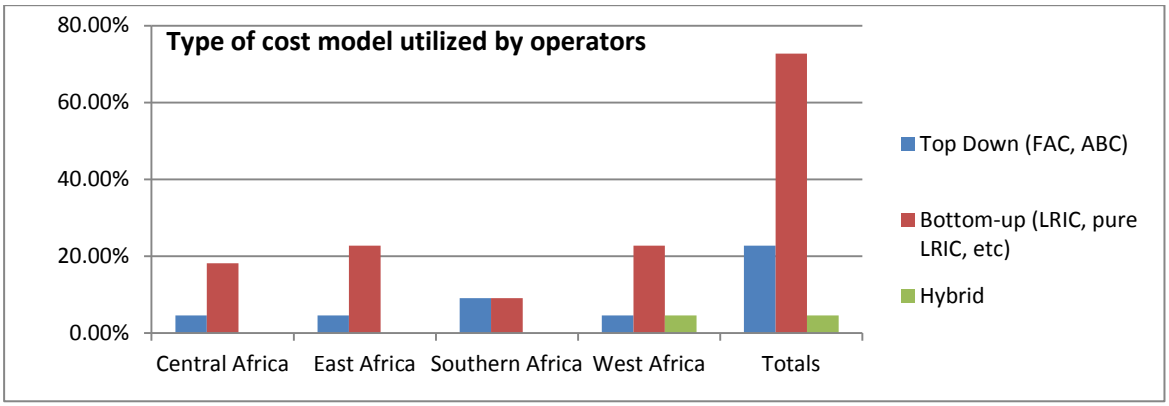
**Comments:**

- The Benchmark is mainly used at 56% by NRAs in Central Africa;
- The Bottom Up modeling is used at 33%;
- Congo is the sole country in Central Africa which uses a Hybrid tool.
- The GSMA survey regarding that parameter shows that in Central Africa region, NRAs are responsible for setting the MTR. They use methodologies and some form of cost model to set up this MTRs. But, those models belong to external consultants and are used by NRAs. The graphic 19 below presents the methodology utilized by the NRA to set MTR's.




*Graphic 19: Methodology utilized by the NRA to set MTR's (Source: GSMA survey)*

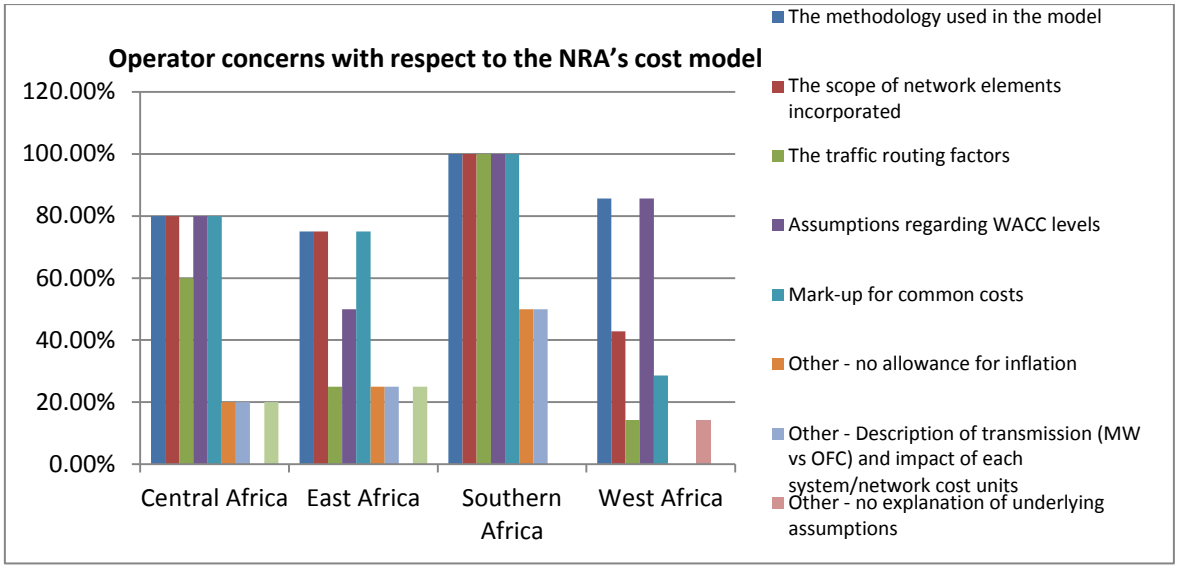
- Approximately 65% of the Mobile Operators have now implemented some forms of cost modeling. The graphic 20 below provides a breakdown of the type of model that has been implemented by them.




*Graphic 20: Type of cost model utilized by operators (Source: GSMA survey)*

- The majority of operators have implemented bottom-up models based on some form of LRIC.
- The GSMA survey also solicited operators' views regarding the cost models either implemented or in the process of being implemented by the NRA's. Approximately 56% of the respondents indicated that their NRA was using a cost model. When asked to identify any concerns that they might have with respect to the cost models being developed or implemented by these regulators, all respondents identified potential concerns.

- The most prevalent concerns globally were related to the methodology used in developing the cost model as well as the assumptions regarding the WACC (weighted average cost of capital), followed by the scope of the network elements incorporated. These concerns are reiterated from another perspective in the graphic 21 below.




*Graphic 21: Operator concerns with respect to the NRA's cost model (Source: GSMA survey)*

## 1.2 Conclusion and recommendations

### *1.2.1 Summary*

The liberalization of the telecommunication market in the early 2000s in Central Africa allowed the creation of the NRAs to regulate the sector.

The Regulatory frameworks based on laws were set up. Operating licenses were granted to the fixed and mobile Operators.

A decade later, numerous NRAs in Central Africa are still having some difficulties implementing a strong regulation for several reasons:

- Regulatory frameworks unsuitability for the evolution of the sector and the introduction of new services by the operators in the market;
- Difficulties to obtain reliable data from the Operators for decision-making;
- The existing costing tools are not any more adapted to the consideration of new services such as Roaming, NGN, Broadband infrastructure and services, Mobile Payment and SMS;
- The most used methods to determine the cost of the services in the Central Africa sub-region are Benchmark (56 %), Bottom Up (33%) and Hybrid (11%);
- The MTRs are higher than retail prices in 38% of countries in Central Africa due to the difficulty of the NRAs to regulate them by means of reliable tools and data;
- Most of NRAs mentioned the lack of qualified human resources, data and financial resources for the implementation of costing tools.

Besides, it is noted that 63 % of the NRAs are planning to update their regulatory frameworks for the consideration of the new services above mentioned. The other countries such Chad, Congo and Equatorial Guinea have not planned to update their regulatory frameworks due to lack of skills and financial resources.

### *1.2.2 Best practice*

The best practice identified for Regulatory accounting and cost modeling in Central Africa is in Congo[2]. The proposed implementation of a cost accounting system by operators is running. To support these operators, the NRA supervises the establishment of an analytical framework to facilitate, for each operator, the development and implementation of the cost accounting system. The introduction of cost accounting is imposed on operators with significant market power.

Thus, despite the absence of a finished analytical accounting model properly implemented, but conditions contained in their license, the processing and analysis of market indicators made available by operators at the end of each month, since 2010, has enabled the NRA to suspect some of them of selling electronic communications at rate that were not cost-oriented. Thus some pricing structures offered by some operators have been invalidated by the NRA. However, the regulatory authority has not removed any specific pricing plan from operators.

For the promotion of a healthy competitive environment, and after a public consultation of all stakeholders in the mobile market, the NRA decided in 12 January 2011 to fix the price ceiling of the mobile communications on-net and the price ceiling of outgoing international telephone calls.

These rates, which are weighted, are subject to revision whenever the operating conditions of the market require it.

This decision, which came back into force in January 31, 2011, was notified to all operators of mobile telephony.

Control prices charged by operators should be done monthly. However, to allow some operators who started from very low to up their prices, at least at the price ceiling, the control period was set for the second half of 2011. The weighting of income and actual minutes cost on each communication destination is the calculation method used to calculate rates of operators.

### *1.2.3 Recommendations*

In order to optimize the regulation of the sector of telecommunications in Central Africa, the following recommendations are formulated:

#### *1.2.3.1 To the intention of the NRAs*

- To update the regulatory frameworks for the consideration of new services such as the Roaming, NGN, Broadband infrastructure/Services, Mobile Payment and SMS;
- to develop and implement, for those who have not made it yet, the strategies of consideration of the new services above mentioned;
- to implement reliable costing practices which might take into account all the regulated services;
- to recruit a qualified personnel or to train the existing staff on regulatory accounting, regulatory auditing and costing issues (e.g. the methods of data collection, data processing and analysis as well as the use of the costing tools);

[2] Source: ARCPE (NRA), Congo: this information comes from the analysis of the questionnaire completed by the NRAs.

- to implement and organize every 3 months, when possible, the regulatory auditing of regulated services;
- to regulate the MTRs at the national level in order to keep them at the lowest rate.

#### *1.2.3.2 To the intention of the ITU*

To organize training workshops and seminars on costing issues to the intention of the NRAs in order to develop the capabilities of their staffs.

To support the NRAs in the adaptation of their regulatory frameworks for the consideration of the new regulated services such as Roaming, NGN, Broadband infrastructure and services, Mobile Payment and SMS.

Part 2

# Part 2 – Legal and regulatory framework for tariff regulation

## 2.1 Strategy of regulatory intervention

### *2.1.1 Status of price control regulation and underlying strategy*

**Table 1 – Type of regulatory intervention, legal basis and underlying regulatory strategy**

| | Type: CO, B, PC, RM (1) | Basis: Li, La, SMP (2) | Underlying strategy : purpose, goal, outcome and achievements ... |
|---|---|---|---|
| BURUNDI | CO | La ,Li | Up to this stage, no specific regulatory strategy has been identified within ARCT to impose price control on services. They rely on the law and the contract signed with operators to intervene |
| CAMEROON | CO | La | The strategy for regulatory intervention is to establish cost-<br>based MTR. The implementation strategy has led to lower termination rates on the national mobile network |
| CENTAL AFRICAN REP. | Tariff fixed by Ministerial Order. | La | Up to this stage, no specific strategy properly defined |
| CHAD | PC | Li | Strategy based on the specifications written in the license delivered to the Operators. |
| CONGO | CO | La | Avoid the market to collapse |
| EQUATORIAL GUNEA | Still in the process of deciding which method to apply | La | Up to this stage, no specific strategy used. They act toward operators in an objective way. |
| GABON | PC | La | By the law, the Agency supervises the operator's tariff. The Agency shall notify operators of its decision and reasons to submit for supervision purpose the rates for a service or set of services.<br>The Agency analyzes the cost price of services on the basis of all available<br>information, including the cost structure and sales services.<br>To this end, operators subject to supervision provide to the Agency once a year, after closing their annual accounts and no later than three months after the end of the fiscal year, a detailed calculation of cost per unit services sold subject to supervision and all information in accordance with the principles set by ministerial order. |
| SAO TOME & PRINCIPE | PC | Li | Only one operator is in place. No strategy has been developed up to this stage. |

(1) CO: cost orientation (cost accounting approaches), B: benchmark, PC: price cap, RM: retail minus...

(2) Li: license, La: law, SMP: relevant market analysis...

### 2.1.2 Cost accounting and regulatory auditing framework

**Table 2 – Status on cost accounting obligation and regulatory auditing**

**Number of relevant countries having cost accounting obligations: 5**

| | Cost accounting | | | Regulatory auditing | |
|---|---|---|---|---|---|
| | Mandated : Yes, No, PI (1) | Operators : all, SMP, incumbent … | Basis: Li, La, SMP, other (specify) (2) | Mandated : Yes, No, PI (1) | Basis: Li, La, SMP, other (specify) (2) |
| BURUNDI | yes | all | La, | yes | La, Li |
| CAMEROON | yes | all | La | yes | La |
| CENTAL AFRICAN REP. | yes | all | La | yes | La |
| CHAD | No | all | Li | yes | Li |
| CONGO | No | all | La | yes | La, only Operators with a SMP |
| EQUATORIAL GUNIEA | No | all | No basis. Missing elements and specific legal basis on the material. | yes | La |
| GABON | yes | all | La, Li | yes | La |
| SAO TOME & PRINCIPE | yes | all | Li | yes | Li |

(1) PI: Planned

(2) Li: license, La: law, SMP: relevant market analysis, if other please specify

**Table 3 – Reasons for which cost accounting and/or regulatory auditing are not implemented or foreseen**

**Number of relevant countries for Cost accounting not mandated or foreseen: 2**

| | Cost accounting not mandated or foreseen | Regulatory auditing not mandated or foreseen |
|---|---|---|
| | Please specify the reasons: lack of legal basis, insufficient resources ... | Please specify the reasons: lack of legal basis, lack of audit framework, insufficient resources, ... |
| CHAD | - lack of legal basis | |
| EQUATORIAL GUINEA | - lack of legal basis | |

### *2.1.3 Status and development stage of costing tools*

**Table 4 – Costing tools**

**Number of relevant countries using a costing tool: 3**

| | Use of a costing | Which one: BU, TD, H, | Operators : all, SMP, | Level of development | If no costing tool is used, please indicate why: lack of |
|---|---|---|---|---|---|
| BURUNDI | No | BU planned to be used | all | U | COSITU was used 7 years ago, but Operators complained about it. Lack of skills as well |
| CAMEROON | Yes | BU | all | P | |
| CENTRAL AFRICAN REP. | No | None | all | P | |
| CHAD | No | B planned to be used | all | U | Lack of resources |
| CONGO | Yes | Other: ICT NetSim Simulator | all | E | When the data were collected, the costing tool was not fully implemented and used for calculation. |
| CONGO DEM. REP. | N/R | N/R | N/R | N/R | N/R |
| EQUATORIAL GUNIEA | No | None | None | P | Lack of resources, lack of skills |
| GABON | Yes | BU, B | all | P | BU used in 2009. B currently used |
| SAO TOME & PRINCIPE | No | To be determined | all | P | |

(1) Pl: Planned

(2) BU: bottom-Up, TD: top-Down, H: Hybrid, B: benchmark

(3) E: existing, U: under development, P: Planned

### 2.1.4 Level of MTR and retail price

**Table 5 – Level of MTR and retail price**

| | Lowest average level of regulated MTR (per minute in local currency) (1) | Retail price: lowest average national off-net price (per minute in local currency) (1) |
|---|---|---|
| BURUNDI | 108FBU/min | 208FBU/min |
| CAMEROON | 38 XAF / min | 92,24 XAF/ min |
| CENTRAL AFRICAN REP. | 70 XAF/min | 52XAF/ min |
| CHAD | 60 XAF/min | 55 XAF/ min |
| CONGO | 46 XAF/min | 86 XAF/ min |
| EQUATORIAL GUNIEA | 125 XAF/min | 150 XAF/ min |
| GABON | 60 XAF/min | 120 XAF/ min |
| SAO TOME & PRINCIPE | 6.426 STD/ min | 2.520 STD/ min |

(1) The average is calculated as follows:

$$\frac{Total\ cost\ of\ a\ 3\ minute\ call\ during\ peak\ hour * peak\ ratio + Total\ cost\ of\ a\ 3\ minute\ call\ during\ offpeak\ hour * offpeak\ ratio}{3}$$

Where:
Peak ratio is the proportion of calls passed during peak hours. In case this ratio is not known please use 70%
Off peak ratio is the proportion of call passed during off peak hours. Off peak ratio = 1 – peak ratio
In case the peak/off peak ratio is not known please use the following: peak ratio = 70% and off peak ratio = 30%
In most of the countries, except Cameroon, Operator's tariffs are collected then the average MTR is obtained using Excel tool.
NRAs in Cameroon and Congo use a tool to compute the MTR.

## 2.2 Difficulties encountered by NRAs

### *2.2.1 Data collection*

**Table 6 – Issues in data collection**

**Number of relevant countries having issues in data collection: 4**

| | Occurred: Yes, No | If yes, at which stage of the collection process | If yes, what were the reasons? |
|---|---|---|---|
| CENTRAL AFRICAN REP. | Yes | After sending the letters, no feedback from the Operators; Beginning of the collection process | Lack of legal basis, lack of will from operators |
| CHAD | Yes | Beginning of the collection process | Lack of will from operators |
| EQUATORIAL GUNIEA | Yes | From the beginning of the collection process | Lack of will from operators |
| SAO TOME & PRINCIPE | Yes | From the beginning of the collection process | Difficulties for operators to provide relevant data, lack of will from operators |

### 2.2.2 Disputes

**Table 7 – Legal disputes**

**Number of relevant countries: 5**

| Countries | Occurred: Yes, | Nature of the dispute | Date | Object of the dispute | Outcome | Impacts, if any, on tariff regulation or |
|---|---|---|---|---|---|---|
| BURUNDI | Yes | Dispute between Mobile and fixed Operators on the tariff of call termination. Mobile operators want to revise upwards the level of tax. | | Cost of transit too high | N/R | None |
| CAMEROON | Yes | MTS Vs ORANGE about the MTR | 2009 | MTN wanted the MTR to be the same for both operators. | NRA has maintained its position and MTR remained asymmetric in 2009. MTN has complied | None |
| CHAD | Yes | Interconnection problems between Sotel Tchad and Tigo, Celtel Tchad and Sotel Tchad | 2007-2010 | Dispute on the invoice | Conciliation | None |
| CONGO | Yes | No payment received from the incumbent to the NRA | N/R | MTR not paid by the incumbent | Not resolved until now | None |
| GABON | Yes | Disputes between 2 operators. | 2008-2010 | Non-respect of the principle of non-discrimination and the principle of cost orientation | Solved | Impact of price regulation and the strategy of cost modeling: yes ARCEP has had to conduct a study on the definition and implementation of an interconnection regime in the Gabonese Republic. |

## 2.3 Foreseen evolutions and challenges

- No price control is effectively applied by the NRAs in all the countries in Central Africa Region.
- Cameroon and Chad are planning to implement new costing tool in 2012.

### *2.3.1 Price control regarding other services*

All the NRAs did not respond to that section.

The planning level of the control obligations for the retail services by country is shown in the table below:

| Countries | Control obligations planned | Costing tool |
|---|---|---|
| Burundi | N/R | |
| Cameroon | • Retail fixed voice<br>• Retail fixed data<br>• Retail mobile voice<br>• Retail mobile data<br>• Bitstream access<br>• Local loop unbundling<br>• Leased lines<br>• Access to IGW | Planned |
| CAR | N/R | Planned |
| Chad | • Retail fixed voice<br>• Retail mobile voice<br>• Retail fixed data<br>• Retail mobile data<br>• Fixed interconnection<br>• Bitstream access<br>• Local loop unbundling<br>• Leased lines<br>• Access to IGW | Planned |
| Congo | N/R | Exist |
| Equatorial Guinea | N/R | Planned |
| Gabon | N/R | Planned |
| Sao Tome | • Retail fixed voice<br>• Retail mobile voice<br>• Retail mobile data | Planned |

### 2.3.2 Foreseen changes in regulatory framework

**Table 8 – Telecom law or regulatory framework review**

**Number of relevant countries: 5**

| | Status: No, Pl, Uw (1) | Target date | Main objectives |
|---|---|---|---|
| BURUNDI | Under way | Not yet decided | Tariffs must be cost-oriented |
| CAMEROON | Under way | Not yet decided | Revision of the decree on interconnection |
| CENTRAL AFRICAN REP. | Under way | Not yet decided | With the advent of fiber optics, CAB project, a review of the Act and the regulatory framework is in progress. |
| CHAD | Under way | Not yet decided | Updating the law to new circumstances as directed by the CEMAC / ECCAS, 2012 |
| GABON | Under way | March 2012 | Change of NRA name (ARTEL to ARCEP)<br>Transfer of the Frequency Spectrum management to another Agency<br>Updating the law to new circumstances as directed by the CEMAC / ECCAS, 2012 |

(1) No: no, Pl: planned, Uw: under way

### 2.3.3 Regulatory strategies for new services and associated challenges

**Table 9 – Anticipated regulatory strategies for new services and associated challenges**

| | Service (1) | Considered: Yes/No | Legal / regulatory basis | Regulatory models / strategies being considered | Challenges |
|---|---|---|---|---|---|
| CHAD | Broadband infrastructure | Yes | | Development of the price list is ongoing for the connection to the Optical Fiber | Lack of resources<br>Harmonize the regulatory texts of the Sub-region |
| | Services provided by 3G | Yes | | Development of the price list is ongoing for the connection to the Optical Fiber | Lack of resources<br>Harmonize the regulatory texts of the Sub-region |

| | Service [1] | Considered: Yes/No | Legal / regulatory basis | Regulatory models / strategies being considered | Challenges |
|---|---|---|---|---|---|
| CONGO | Roaming | Yes | | They are planning to use the ICT NET SIM model | |
| | Broadband infrastructure | Yes | | They are planning to use the ICT NET SIM model | |
| | Next Generation Network | Yes | | They are planning to use the ICT NET SIM model | |
| EQUATORIAL GUNIEA | Roaming | Yes | | On a basis that is referenced to the applicable international standards. | Still in the first stage of the implementation process: Benchmarking of tools.<br>Having the services regulated as recommended by the ITU. |
| | Broadband infrastructure | Yes | | | |
| | Mobile payment | Yes | | | |
| | SMS | Yes | | | |
| GABON | Mobile Payment | Yes | | | |
| | Roaming | Yes | | | |
| | Broadband infrastructure | Yes | | | |

(1) Roaming, broadband infrastructure, NGN/NGA, mobile payment, if other please specify

Part 3

# Part 3 – Cost accounting and regulatory auditing

## 3.1 Cost accounting

Cost accounting is to be implemented in several countries. Mainly, lack of skills and financial resources are the main challenge.

In Cameroon the obligation to keep a cost accounting system is included in the new law on electronic communications adopted in December 2010. The framework is being developed.

CAR: Nothing has been planned so far.

Congo: Hybrid model used.

### *3.1.1 Data collection process*

NRAs of the Central African Region do not have a cost accounting process managed or planned.

Operators are slow to send data, despite the fact they are require to send data at specific time determined by the NRA.

NRAs have to remind them of the regulatory texts and their power as a Regulator.

**Table 10 – Cost accounting – data collection process**

**Number of relevant countries: 1**

| | Process | | | | Implementation | |
|---|---|---|---|---|---|---|
| | Frequency | Deadline | Actual (present and past) figures and period covered | Forecasted figures and period covered | Number of occurrences | Latest collection |
| CHAD | Quarterly | N/R | 3 months covered | N/R | 3 times yearly | Sept 2011 |

### *3.1.2 Scope of costs and cost preparation*

**Table 11 – Cost accounting – Degree of regulatory prescription regarding cost preparation**

| | Costs & revenues nomenclature : Yes, No | Specifications imposed : Yes, No | When specifications are imposed, please specify the specs (please delete the non-relevant specifications and add any complementary specification) : |
|---|---|---|---|
| CHAD | N/R | N/R | - N/R |

### 3.1.3 Valuation and allocation methodologies

**Table 12 – Main principles used to allocate costs categories between voice and data**

| | Network costs | License cost | Other costs (please specify) |
|---|---|---|---|
| CHAD | N/R | N/R | • Administrative Management Fee: 3% of CA;<br>• Fee per duplex channels: 4,000,000 FCFA;<br>• Frequency's Fee: 3,000,000 FCFA;<br>• • Costs of Research, Training and Development of Telecommunications: 1% of CA |

**Table 13 – Accounting system/allocation methodology used and relevant increment size**

| | Allocation methodology: LRIC, FDC, other (please specify) | Size of the relevant increment : Marginal, Service increment, Average increment, other (please specify) |
|---|---|---|
| CHAD | N/R | N/R |

**Table 14 – Cost base and assets valuation methodology**

| | Cost base : HCA, CCA, other (please specify) | Capital maintenance concept used: OCM, FCM | Please specify per type of asset (building/civil works, telecom equipment …) the valuation methodology used: Absolute valuation, indexation or MEA |
|---|---|---|---|
| CHAD | N/R | N/R | - N/R |

**Table 15 – Depreciation method and assets lifetime**

| | Depreciation method : SL, TSL, AN, TAN, other (please specify)[(1)] | Lifetime (in years) | | | | | |
|---|---|---|---|---|---|---|---|
| | | Civil works | Power equipment | Access equipment | Core network | Backhaul/ backbone | License |
| CHAD | N/R | N/R | N/R | N/R | N/R | N/R | N/R |

(1) SL : Straight-line, TSL: Titled straight line, AN : Annuity, TAN : Titled annuity

### 3.1.4 Cost of capital

**Table 16 – Cost of capital allowed and calculation methodology**

| | Rate of return (value in %) | Methodology : WACC, other | Cost of equity estimation : CPAM, other |
|---|---|---|---|
| CHAD | N/R | OTRT relies on the statement made by the operators | N/R |

## 3.2 Regulatory auditing

Regulatory auditing processes are not in place and/or legally mandated in most of the countries of the sub-region for various reasons:

- lack of legal framework;
- no specific auditing process or methodology had been put in place.

### 3.2.1 Scope of regulatory audit and issues addressed

All the NRAs in the sub-region did not respond to that section.

### 3.2.2 Operators obligations

**Table 17 – Regulatory auditing - Operators obligation and legal/regulatory basis**

| | Access all internal supporting data | Respond in a predefined timeframe to any | Other | Basis |
|---|---|---|---|---|
| CHAD | Audit conducted to control operators fees according to their license conditions or establish statistics on the market | Yes | Close collaboration with the audit team Manager | La, Operator TOR, Regulatory texts |

### *3.2.3 Overall regulatory auditing process*

**Table 18 – Status on how regulatory auditing is implemented**

| | Implementation rules | | | Application | | |
|---|---|---|---|---|---|---|
| | **Occurrence** | **Body in charge of conducting the audit :** | **Who pays?** | **Cost** | **Date of latest audit** | **Outcome** |
| CHAD | audit conduct to control operators fees according to their license conditions or establish statistics on the market | independent external auditors | NRA | | December 2005 | A false statement of the CA that led to the payment of the difference plus a penalty equal to 50%. |

Part 4

# Part 4 – Costing tools and cost model development

## 4.1 Bottom-up

### *4.1.1 Strategy for implementation*

**Table 19 – Public availability of the model and of its input dataset**

| | Publicly available: Yes, No? | If the model is not publicly available: | | |
|---|---|---|---|---|
| | | Please explain why | Shared with operators or for internal use | Planned to be made public: Yes+date, No |
| CAMEROON | Yes | | Yes | N/R |
| CHAD | No | model being experimented | Yes | Yes and in the near future |
| GABON | No | N/R | Internal use only | No |

**Table 20 – Strategy of implementation and data used**

| | Strategy of implementation: Sh, Co, EE, DI, other (please specify) (2) | Did you use data from operators: Yes, No? | If operators' data are used, how did you collect them: CA, SR, Cn, other (please specify)? (1) |
|---|---|---|---|
| CAMEROON | Model of the World Bank for countries in Sub Saharan adapted to our realities | Yes | specific request |
| CHAD | Advisory services to draft a customized model | No | |
| GABON | Model of the World Bank for countries in Sub-Saharan adapted to our realities | Yes | Specific requests, consultation of operators' web sites |

(1) CA: Data from cost accounting obligation, SR: Specific request, Cn: Consultation

(2) Sh: From the shelf (ITU, WBG, etc.), Co: Consultants to develop a bespoke one, EE: Evolution of an existing model, DI: Developed internally (from scratch)

### 4.1.2 Model assumptions and parameters

**Table 21 – Assumptions of the model**

| | Modeled operator: EO, HE? (1) | Time horizon applied for recovering costs | | Level of demand used: CL, FL, other (please specify) (2) | Market share assumed | |
|---|---|---|---|---|---|---|
| | | Value (nb of years) | Why (rationale)? | | Value (%) | Why (rationale)? |
| CAMEROON | HE | 15 | | FL | | not needed in the model used |

(1) EO: Existing one, HE: hypothetical efficient operator, if other please specify

(2) CL: current level, FL: future level based on extrapolation, if other please specify

**Table 22 – Parameters of the model**

| | Key cost drivers: Yes, No | | | | Coverage assumed | | |
|---|---|---|---|---|---|---|---|
| | Nb of subs | Traffic | Coverage | Other (please specify) | Basis: AE, CC, TC, PC, other (please specify) (1) | In % of population? | In % of territory? |
| CAMEROON | Yes | Yes | | Network elements, routing factors. | Other: coverage as specified in the licenses | 45 | 60 |

(1) AE: Average of current coverage of existing networks, CC: Current coverage of largest network, TC: Theoretical coverage (as derived from efficiency considerations), PC: Prescribed coverage (as specified in the licenses), if other please specify

### 4.1.3 Methodology used to design network and to model OPEX

**Table 23 – Strategy of implementation and data used**

**Number of relevant country: 1**

| | Network design | | Operational expenditure | | |
|---|---|---|---|---|---|
| | Methodology: SN, SE (1) | Rationale behind the choice of scorched node or scorched earth | Modeling approach: MU, other (please specify) (2) | If a mark-up is used, please specify if it is SA, DA, DT (3) | How was the figures used to calculate OPEX derived :B, OD, VD, other (please specify) (4) |
| CAMEROON | SN | Take into account the existing network as a starting point even if inefficient items are subsequently removed | MU | DA | B, OD |

(1) SN: scorched node, SE: scorched earth
(2) MU: mark up on network assets, if other please specify
(3) SA: same mark-up for all network assets, DA: different mark-up depending on the type of asset, DT: different mark-up depending on technology i.e. 2G or 3G
(4) B: benchmark, OD: operators' data, VD: vendors' data, if other please specify.

## 4.2 Top-down

This model is not used by any NRA in Central Africa.

### 4.2.1 Strategy for the treatment of operators' data

All the NRAs did not respond to that section.

### 4.2.2 Cost/volume relationship and key cost drivers

All the NRAs did not respond to that section.

### *4.2.3 Routing factors determination*

All the NRAs did not respond to that section.

## 4.3 Benchmark

### *4.3.1 Benchmark scope*

**Table 24 – Strategy of implementation and data used**

| | Purpose of the benchmark: PT, CT, other (please specify) [1] | Nb of countries included in the benchmark |
|---|---|---|
| BURUNDI | CT | Countries in the sub region: 9 |
| CAMEROON | CT | 6 |
| CHAD | CT | 3 |
| GABON | CT | 5 |

(1) PT: primary costing tool, CT: complementary tool to check the outcome of another costing tool, if other please specify

### *4.3.2 Countries selection process*

**Table 25 – Basis/methodology used to select the benchmarked countries**

| | 'Similar' countries | | | | | Only countries using a cost model (yes, no) | Other selection criteria/methodology (please specify) |
|---|---|---|---|---|---|---|---|
| | Population size (yes, no) | Population density (yes, no) | Topography (yes, no) | Similar market (yes, no) | Other similarity criteria (please specify) | | |
| BURUNDI | N/R | N/R | N/R | N/R | | No | |
| CAMEROON | yes | yes | No | yes | | No | |
| GABON | No | No | No | Yes | | No | |

### 4.3.3 Methodology used to set price

Cameroon decided to set the price based on the average of selected prices. No specification has been selected so far to calculate the average.

**Table 26 – Methodology used to derive the level of price**

| | On what basis is the price set? | | | | Currency conversion |
|---|---|---|---|---|---|
| | Average of some prices: all, best 5, … (please specify) (1) | Best rank 'n' price: please specify 'n' | Other (please specify) | Rationale behind the chosen basis used to set the price | Method used to convert to national currency (2) |
| GABON | all | | | | Latest rate |

(1) Please specify which prices are selected to calculate the average: all, best 5, best 3 excluding rank 1 (1st) price...

(2) L: latest, A1: average over 1 year, A3: average over 3 year, if other please specify

# Glossary

CAPEX Capital expenditure

CAPM Capital asset pricing model

CCA Current cost accounting

CVR Cost/volume relationships

FCM Financial capital maintenance

FDC Fully Distributed Costs

(also referred to as Fully Allocated Costs – FAC)

HCA Historical cost accounting

IGW International gateway

IXP Internet exchange point

LRIC Long run incremental costs

MEA Modern equivalent asset

MNO Mobile network operator

MTR Mobile termination rate

NRA National regulatory authority

OCM Operational capital maintenance

OPEX Operating expenditure

SMP Significant market power

WACC Weighted Average Cost of Capital

# Project background

**Background**

This ITU-EC joint project for "Harmonization of ICT Policies in Sub-Sahara Africa" (HIPSSA) is building on the experienced gained with a pilot project funded by European Commission (EC) and ITU that led to the adoption of Additional Acts for telecommunications to the ECOWAS Treaty. It aims at developing and promoting harmonized policies and regulatory guidelines for the ICT market as well as building human and institutional capacity in the field of ICT through a range of targeted training, education and knowledge sharing measures. This project will result in the creation of harmonized regional and national policy, legal and regulatory frameworks conducive to significant investments in the ICT infrastructures and services.

Tariff regulation calls on two main activities regulatory auditing and cost modeling. ITU has been for a long time the primary forum of discussion on tariff and accounting principles including related telecommunication economic and policy issues (ITU-T SG-3 activities and recommendations, SG3RG-AFR, former TAF, etc.). Liberalization of telecommunications in Africa has induced the need for nascent regulators to build up capacity in cost modeling and regulatory accounting for them to be in the situation of regulating tariffs of operators.

ITU has largely responded to this need by running training workshops, proposing tools like COSITU and a didactic cost model, building up expertise within its network of Centers of Excellence. Bringing mobile termination rates down has been the key instrument for European regulators in Europe and beyond to reduce the communications prices. Regional organizations across Africa have started to harmonize cost modeling like ECOWAS, adopting on methodology standard for West Africa (the Supplementary Act on Interconnection refers to a bottom-up LRIC model).

**Objectives**

Today networks and services are undergoing major transformation moving away from circuit based communication, be it fixed or mobile, to ubiquitous packet based services.

Within the framework of its joint project with the EU, ITU is ready to respond once again to the needs of HIPSSA beneficiaries its members by providing regional organization with an up-to-date review of regulatory practices in their respective regions identifying trends on which they could build a common approach on regulatory auditing and cost modeling. Based on this assessment, updated training material will be developed, delivered and embedded into the respective networks of regional associations of regulators and ITU Centers of Excellence to ensure a sustainable mechanism of delivery

This training workshop's objectives are the following:

- Understanding the competitive electronic communications services provision market and price regulation.
- Regulatory auditing, accounting separation and cost modeling.
- Cost model development accounting standards, concepts and key assumptions.
- Cost model development: process of building a cost model.
- Review of existing public available cost models in the region and beyond, model comparisons and future challenges.
- Price controls and its relation to cost modeling, accounting and regulation.

**Outcomes**

The final report of the assessment study will be presented to the regional organizations among them the AU Commission and their member states[3] and could be an input to the development of regional and pan-African policy guidelines towards cost orientation services tariffs and interconnection rates.

Outputs of the assessment study will be used to update and customize the training material already available at the ITU. Some hands-on exercises will be made available on the basis of the challenges faced in each region and the selection of cost models and data sets publicly available in the regional and beyond.

**Implementation**

This activity shall cover all sub-Sahara Africa and have three main phases:

*Assessment study*

1. First phase: Development of regional assessment studies on costing strategies and cost model application and processes (development, data collection and application) using as references ITU publications (ITU-T Study Group 3 outputs and recommendations, etc.), ICT Regulation Toolkit, previous training material (RME, CoE, etc.) and past experience on cost modeling and regulatory auditing. In this first phase, data collection will be conducted through surveys and interviews (based on a common template) with regulators and operators and analysis. The study will be divided geographically into four regions as defined by the African Union (AU): West Africa, Central Africa, East Africa and Southern Africa.

2. Second phase: Consolidation of the regional studies' findings in a final report providing an overview of the whole Sub-Sahara Africa, identifying best practices (from the region and beyond) and presenting the conclusions and recommendations of national experiences' comparative analysis across the region and beyond. For more details about the consolidated study's outline see Annex 1.

A team of six experts will be completing the study. This team includes a senior international expert in charge of the team coordination (project management), an international subject matter expert and one regional expert for each of the following regions: West Africa, Central Africa, East Africa and Southern Africa. For more details about the experts' team structure and respective responsibilities see Annex 2.

*Capacity Building*

3. Third phase: regional capacity building includes preparation of training material taking in to account the regional assessment studies and best practices developed in phase 1 and 2. This material will be delivered in face-to-face five days training workshop in each region[4].

The training will be based on "ITU expert-level training for regulatory authorities and operators on network cost modeling " level I and II materials that will be customized to the needs of each region taking into account specific request from the HIPSSA project's beneficiaries (REC, RRA and MS) and will be free for them to use. For more details about the issues covered by the training material outline see Annex 3.

[3] At the next AU pan-African ministerial meeting (CITMC-4)

[4] Tentative title is "Electronic Communications Services Cost Modeling for National Regulatory Authorities and Operators".

These series of regional capacity building workshops will be organized in each of the identified region in partnership with the regional beneficiaries of the HIPSSA project (REC[5], RRA[6] and their respective members) and each time it is possible with the ITU CoEs[7] (if they can't convene they will be invited and the participation of their trainers will be sponsored), taking into account the language challenges. For more details about the series of workshops see Annex 4.

[5] Regional Economic Communities: ECOWAS (& UEMOA), ECCAS (& CEMAC), EAC, COMESA, IGAD and SADC
[6] Regional Regulators' Associations: WATRA, ARTAC, ARICEA, EACO and CRASA
[7] Centers of Excellence: ESMT, CMTL, Afralti, KIST, MU, Netel@Africa, etc.

# Annex 1: Outline of the study

The different steps in the study will include but won't be limited to:

1. Collect regional and national legal and regulatory provisions for:
    a. Tariff policies and regulations
    b. Regulatory auditing and cost accounting methodologies
    c. Cost modeling
2. Review of national situations regarding regulatory auditing, cost accounting and cost modeling and more specifically:
    a. The existence and use of cost models or other methodologies (benchmarking, etc.) and strategies (Min-Max, etc.) applied
    b. The costing methodologies applied for the different retail electronic communications regulated services: mobile and fixed, voice (circuit or VoIP based) and data (SMS, broadband, etc.)
    c. The costing methodologies applied for the different wholesale services (interconnection, mobile termination rates, broadband access, bistream access, line rental, leased lines, access to international gateways, access to Internet exchange points)
    d. The public availability of cost models and input data sets
    e. The data collection process and strategies adopted taking into account regulator's legal mandate
    f. The process of development or selection of cost models based on the following cases:
        i. I don't have a cost model and would like to use one from the shelf (ITU, WBG, etc.)
        ii. I do(n't) have a model and would like consultants to develop a bespoke one
        iii. I have a model and would like to make it evolve for new services
        iv. I would like to develop a cost model internally (from scratch)
    g. The national past experiences using cost models including:
        i. Regulatory auditing to get input data for the model
        ii. Work cycle of data collection, result publication and tariff regulation
        iii. Legal disputes around tariff regulation and cost modeling
3. Review of the cost modeling strategies applied by operators.
4. Comparison and assessment of cost models used and publicly available in the region and beyond.
    a. Sensibility analysis of various cost models and benchmarking
    b. Specific models or strategies applied or to be applied for services such as: universal access and service, MTR, submarine cables and landing stations, IXP, national broadband backbone and infrastructure, rural and community low cost networks, etc.

Annex 1

5. Selection of concrete past and current application of cost modeling in the region and beyond.

   a. Success stories (Kenya and Safaricom, EU MTR regulation, etc.), challenges (roaming, broadband infrastructure, NGN/NGA, mobile payment, etc.), lessons learned, etc.

   b. Best practices from the region and beyond.

# Annex 2: Composition of the expert's team and respective responsibilities

The *Senior International Expert* will be in charge of (i) the overall coordination and quality insurance of the assignments of all the Regional Experts within the team, (ii) ensure liaison with the AU Commission, Regional Economic Communities (REC) and regional regulators' associations (RRA) and as required with the African Telecommunication Union (ATU), (iii) consult the stakeholders including regional associations of operators among others, (iv) develop the working methodology and an appropriate schedule for the implementation of the whole project, (v) review, discuss and provide written comments on the draft and final documents developed during this project as described in the HIPSSA/G-5.6 (s) [PM] for the assessment study and HIPSSA/G-5.6 (t) [PM] for the preparation of the training material.

The *Regional Experts* will be responsible for conducting the assessment study in their respective geographical region (West, Central, East and Southern Africa) (see HIPSSA/G-5.1 (s) [WA], G-5.2 (s) [CA], G-5.3 (s) [EA] and G-5.4 (s) [SA]). This assessment will include performing data collection and analysis of the costing and auditing methodologies applied in each region as well as the cost models applied for the different services by using a survey and interviews (based on templates proposed by and agreed on with the International Expert). In the last phase, (see HIPSSA/G-5.1 (t) [WA], G-5.2 (t) [CA], G-5.3 (t) [EA] and G-5.4 (t) [SA]) they will be responsible for the preparation of the training material related to case studies specific to the region based on requirements proposed by and agreed on with the International Expert and taking into account the regional assessment study and best practices, for the delivery of practical tutorials including hands-on practice on models during a face-to-face five days training on Electronic Communications Services Cost Modeling for National Regulatory Authorities and Operators in their respective region.

The *International Expert* (see HIPSSA/G-5.5 (s) [INT]) will be responsible for (i) providing a briefing note on the assessment study objectives and methodology for auditing and costing, (ii) providing the regional experts with a common questionnaire for the survey and a common template of table of content for the study to facilitate the comparative analysis, (iii) consolidating the sub-regional assessments, and (iv) conducting a gap analysis to identify needs across the sub-regions related to regulatory auditing and the application of cost models for different services. In the last phase, (see HIPSSA/G-5.5 (t) [INT]) he will be responsible for the preparation of the main training material in close collaboration with the regional Experts and the requirements for the regional case studies to be prepared by the Regional Experts, taking into account the regional assessment studies and best practices, for the delivery of a face-to-face five days training on Electronic Communications Services Cost Modeling for National Regulatory Authorities and Operators in each region.

# Annex 3: Content of the training workshops

The training outline will cover at least, the following issues, with emphasis in the situation of the region where the training will be delivered:

- Overview of the market – structure, competition, laws and regulations, situation in the region
- Types of competition in telecom markets (Perfect competition, Effective competition, Market competition, Sustainable competition)
- Overview of retail and wholesale regulation – evaluating the adequacy of cost modeling methodologies
- New cost models reflecting the changes in the digital world – experience from the region and beyond
- Regulatory auditing, accounting separation and development of cost models
- Relation between price and cost regulations
- Pricing and analytical accounting as strategic tools
- Accounting and cost modeling basic concepts
- Direct costs, common cost, joint cost, cost drivers
- Accounting standards and concepts (LRIC, LRAIC, SAC, ABC, FDC): differences, economics and rationale
- Accounting standards and accounting separation: principles and practices
- Overview of models (top down, bottom up, hybrid models)
- Key assumptions (e.g. scorched earth vs. scorched node)
- Fixed and mobile communications services, universal service, wholesale and retail service cost models
- Overview on existing publicly available cost models (WBG/Bipe, ITU/COSITU, EC/ERG, etc.) as well as cost models applied in the region
- Cost model development: parameters' definitions and process of developing a cost model
- Data collection process and strategies - understanding data inputs
- Determination of the Weighted average cost of capital (WACC) - theory and practice: explain the theory behind the various elements going into WACC calculation and detail the methodologies for estimating them in practice, exercises
- Cost model development: process of building a cost model
- Other cost determination approaches and alternatives (Benchmarking)
- Limitations of network cost modeling – to understand the circumstances where care or judgment is required before implementing the calculation from this type of models
- Impact of convergence and NGN on price controls
- Price controls and its relation to cost modeling, accounting and regulation - which information is critical for the calculation of correct price ceilings?
- Play role exercises and case studies in group work sessions to facilitate hands on learning experience and skills transfer for the participants.

# Annex 4: One training workshop in each region

*Central Africa (CA-3)*

In partnership with ARTAC, the regional association of telecoms regulators (to be included in their annual work program at their upcoming general assembly to be held in Ndjamena, Chad from 26 to 29 April 2011).

To be held in French due to the overwhelming majority of French speaking countries in the region and the custom of this organization to hold its statutory meetings in French.

Identification of the suitable PC lab may be challenging (Buea University in Cameroon where BADGE training was taking place or KIST but Rwanda is not part of ARTAC/ECCAS anymore and might be reluctant to host training in French only)

*East Africa (EA-8)*

In partnership with EAC Secretariat, EACO, COMESA and ARICEA, the Regional Economic Communities and regional associations of communications regulators (strong demand from EAC Secretariat expecting an implementation during the second quarter of 2011 and latent demand from COMESA/ARICEA).

To be held in English in one of the ITU CoE of the region (Afralti, KIST, Makere University or Netel@Africa based with the Dar Es Salam University) or at the UNECA IT lab in Addis Ababa (within EAC only Burundi could find English challenging even though they participate to official EAC proceedings which are all in English, within COMESA the linguistic mix is even more varied but English is definitely the common working language).

*West Africa (WA-?)*

In partnership with ECOWAS and UEMOA Commissions and WATRA, the Regional Economic and Monetary Communities and regional association of communications regulators (strong demand from ECOWAS Commission who may have some EU funds available since this activity was on their 2010 work program but they haven't been able to implement it. Focus would be on modeling of cost related to international submarine cables and landing stations identified by WATRA as a priority).

To be held in French and English at one of the ITU CoE of the region (ESMT or CMTL).

*Southern Africa (SA-2)*

In partnership with SADC, CRASA and SATA, the Regional Economic Community, the regional association of communication regulators and the regional association of operators (latent demand from CRASA on roaming).

To be held in English.

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