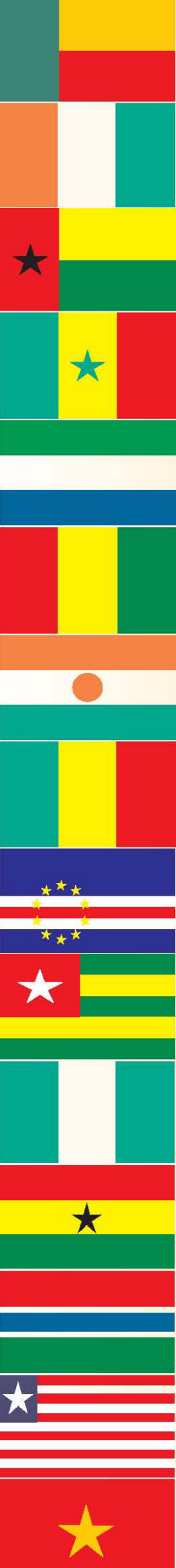


# West African Common Market Project:

Harmonization of Policies  
Governing the ICT Market in  
the UEMOA-ECOWAS Space

Interconnection



European Union





## **Interconnection**

Under the West African common market project for harmonizing ICT market policies in the West African Economic and Monetary Union (UEMOA) and the Economic Community of West African States (ECOWAS) with the support of the European Commission and the International Telecommunication Union (ITU), guidelines and best practices have been researched and developed for different aspects of ICT regulation. In the first phase, in 2004, validation workshops were held to present the first working versions, covering the following regulatory topics: interconnection, universal access/service, licensing, numbering and spectrum management. Following those workshops, the comments made by the participants were incorporated and the documents re-worked in order to give UEMOA and ECOWAS a regulatory framework optimally adapted to their member countries, in the age of the information society.

The first version of the report on interconnection was developed by Mme Assoi, coordinator for phase I of the project. It was presented at the validation workshop for the licensing and interconnection module held at Bamako, Mali, 22-24 November 2004. This report incorporates a revision and an update of the first version. This part of the work was done by Mr Rochdi Zouakia, head of the interconnection division at the national regulator of Morocco, *Agence nationale de réglementation des télécommunications*. In the second phase of the project, the document will be presented to the UEMOA/ECOWAS member countries for final approval.



# Interconnection

## TABLE OF CONTENTS

	<b>Page</b>
Foreword	
A Introduction .....	1
A.1 The concept of interconnection .....	1
A.2 Interconnection and competition .....	1
A.3 Interconnection from the perspective of operators and consumers .....	2
A.4 Interconnection and regulatory policy .....	2
B Examination of regulatory tools relating to interconnection .....	3
B.1 Aspects relating to infrastructure access .....	4
B.1.1 Access to the point of interconnection .....	4
B.1.2 Local loop unbundling .....	5
B.1.3 Co-location .....	6
B.1.4 Passive infrastructure sharing .....	6
B.2 Aspects relating to competition .....	7
B.2.1 Carrier selection .....	7
B.2.2 Number portability .....	8
B.2.3 National roaming .....	10
B.2.4 International roaming .....	10
B.3 Aspects that are specific to incumbent operators .....	11
B.3.1 Concept of relevant market and significant market power on a relevant market .....	11
B.3.2 Obligations that may be applied to dominant operators .....	13
B.3.3 Expansion of the interconnection catalogue to promote development of the Internet .....	18
B.3.4 Specific problem of fixed-to-mobile calls .....	19
B.4 Aspects specific to the settlement of disputes .....	21
C Existing regulatory framework for interconnection .....	22
CASE STUDIES: BURKINA FASO AND MALI .....	23
C.1 Burkina Faso .....	23
C.2 Mali .....	27
C.3 Conclusions drawn from case studies; recommendations .....	27

Overall conclusions.....	37
Annex 1 – Guidelines for Interconnection.....	31
1    Guidelines on aspects relating to infrastructure access .....	31
2    Guidelines on aspects relating to competition.....	33
3    Guidelines on aspects that are specific to dominant and significant market power (SMP) operators.....	36
4    Guidelines on aspects specific to the settlementof disputes.....	39
Annex 2 – DECREE No. 2000-087/PRES/PM/MC/MCIA SPECIFYING THE GENERAL CONDITIONS FOR TELECOMMUNICATION NETWORK AND SERVICE INTERCONNECTION – BURKINA FASO .....	41
Annex 3 – DECREE No. 00-230/P-RM of 10 MAY 2000 ON INTERCONNECTION IN THE TELECOMMUNICATION SECTOR – REPUBLIC OF MALI.....	55

## **Foreword**

In the 1990s, significant changes took place in the African telecommunication sector, as numerous state-owned companies began to be privatized and the concept of monopoly was progressively phased out in favour of deregulation and competition.

This came about as African – particularly West African – states realized that there was a need to liberalize telecommunication markets in order to make it possible for networks to be improved, rapidly to deliver quality services to the customers, and, naturally, to attract private capital (an important financial objective).

Nonetheless, in most of those countries the teledensity rate remains relatively low, in particular for fixed telephony, and many of them lack:

- technically advanced networks capable of providing a quality of service that is up to international standards;
- the resources necessary to properly manage the opening of the telecommunication markets to competition, particularly in view of the fact that the regulatory authorities in most cases were set up quite recently, and the officials responsible for regulatory matters are relatively inexperienced in regulatory practice in a competitive environment;
- a suitable legal framework, appropriate for the needs of liberalization and regulation;
- a well-defined calendar and clear strategy for opening the telecommunication market.

That said, most West African countries have already opened the mobile segment of the market to competition, with plans for the fixed part of the market to be opened by 2007. This liberalization should give private citizens and businesses in those countries access to a better quality of telecommunication service at an affordable price, for basic services and advanced services (Internet, broadband) alike.

In a partially liberalized environment, the most sensitive issues by far are those that touch on network interconnection, particularly when it is planned to open the market to competition still further.

New entrants require a degree of reassurance, in the form of an appropriate regulatory framework for interconnection, to justify the heavy capital expenditure required, particularly during the first four years of network deployment. During this period, new entrants typically rely heavily on the incumbent's network to help them provide services, in the form of leased lines, call termination, or infrastructure sharing.

It is therefore a prime regulatory imperative that the interconnection regime between competitors be a healthy, transparent and fair one, if it is desired to attract capital and foster investor confidence.

The interconnection guidelines proposed in the following are intended to facilitate the establishment of a transparent, fair and accessible regulatory environment for interconnection, prepare the ground for an overhaul of the current regulatory framework, and identify internationally recognized best practices, to prepare telecommunication markets in West African countries for opening to full competition in a healthy manner.

The guidelines are part of a larger project of the European Union and the International Telecommunication Union, intended to develop the telecommunication sector in West African countries.

This process is based on the UEMOA/ECOWAS vision for the development of the sector in the region: a single liberalized telecommunication market for the entire Community, thanks to harmonized legislative and regulatory frameworks and integrated and interconnected networks.

The introductory first part will provide an overview of what is involved in interconnection, and what is at stake.

The next part will examine the following, in line with the terms of reference for this study.

- a) The regulatory tools relating to interconnection, broken down for our purposes into four types:
  - Aspects relating to infrastructure access:
    - access to the point of interconnection (POI)
    - local loop unbundling
    - co-location
    - passive infrastructure sharing
  - Aspects relating to competition:
    - carrier selection
    - number portability
    - national and international roaming
  - Aspects that are specific to the dominant operators:
    - concept of relevant market and significant market power in a defined relevant market
    - obligations applicable to dominant operators: cost-based prices, adoption of cost accounting for the needs of regulation, separate accounting and accounting audit, publication of a catalogue of technical and tariff conditions (reference interconnect offer (RIO)), negotiated interconnection contract
    - expansion of the RIO to foster Internet development
    - dealing with the specific problems of fixed-to-mobile calling
  - Aspects that are specific to dispute resolution
- b) Guidelines and recommendations established in the light of European and other international best practices will be presented, for each of the abovementioned aspects.
- c) The regulatory framework for interconnection in Burkina Faso and Mali will be examined (those two countries appear to have the most comprehensive body of regulations, available in electronic form). These two cases will be studied to identify examples of shortcomings and come up with recommendations for revising the regulatory framework for interconnection in the countries of UEMOA/ECOWAS.

The conclusion includes a summary of the findings and a *suggested* timeline for implementation of the guidelines, bearing in mind the ultimate objective, which is the total opening of the West African telecommunication markets in 2007, and the current state of competition in the member countries. Each of the countries has its own unique situation and constraints, with respect to its progress in the liberalization of the telecommunication sector and its social and economic conditions; the actual timeline for implementing these recommendations should be elaborated in consultation with all of the countries, within an UEMOA/ECOWAS framework.



## **A Introduction**

As telecommunication markets have opened to competition, the number of networks and services in many African countries has grown. If the users of these different networks are to take full advantage of the resultant diversity and enjoy unhindered, transparent communication, the networks must be interconnected.

Where there is more than one operator, interconnection is currently the only way to connect the different telecommunication networks so that all users can freely communicate.

### **A.1 The concept of interconnection**

The complexity of interconnection has given rise to a variety of definitions, and demands a significant regulation effort in the form of a telecommunication law.

As a starting point, interconnection may be said to be the sum of all the commercial and technical arrangements which operators and service providers use to connect their equipment, networks and services so as to provide their customers with access to the customers, services and networks of other service providers.

According to the World Trade Organization (WTO), interconnection refers to "linking with suppliers providing public telecommunications transport networks or services in order to allow the users of one supplier to communicate with users of another supplier and to access services provided by another supplier, where specific commitments are undertaken."<sup>1</sup>

Under the provisions of the European directive of 30 June 1997, interconnection means "the physical and logical linking of telecommunications networks used by the same or a different organization in order to allow the users of one organization to communicate with users of the same or another organization, or to access services provided by another organization. Services may be provided by the parties involved or other parties who have access to the network"<sup>2</sup>.

For the International Telecommunication Union, interconnection is comprised of those commercial and technical arrangements by which service providers connect their equipment, networks and services so that their customers can have access to the customers, services and networks of other service providers<sup>3</sup>.

These different definitions make it clear that successful interconnection must guarantee the interoperability of telecommunication networks and services.

### **A.2 Interconnection and competition**

Interconnection plays a crucial role in the creation of a competitive telecommunication services market.

Interconnection is the component that will allow new entrants to provide telecommunication services using the incumbent operator's network and infrastructure, while avoiding the need for massive capital investment. It creates incentives for the incumbent to become more competitive by providing a broader range of services (leased lines, wholesale, etc.).

---

<sup>1</sup> WTO agreement on basic telecommunications, 14 July 2000.

<sup>2</sup> Directive 97/33/EC of the European Parliament and of the Council of 30 June 1997 on interconnection in Telecommunications with regard to ensuring universal service and interoperability through application of the principles of Open Network Provision (ONP). Official Journal L 199, 26/07/1997 P. 0032 - 0052.

<sup>3</sup> Interconnection: Regulatory issues. Report of ITU Colloquium, 1995.

Interconnection contributes to meeting the objectives of universal service by making basic telecommunication services accessible to a larger number of users. It also leads to a range of new, innovative communication services being introduced and made available.

Interconnection and competition are thus closely linked, as the one presupposes the other. The role of interconnection is to stimulate and facilitate competition between telecommunication networks while ensuring their universality.

Interconnection also has an important influence on capital expenditure policy. Many countries have realized that one of the best ways of stimulating development of the national telecommunication infrastructure and diversifying the range of services available is to encourage the entry of new operators. Their investments provide important benefits, not only in terms of the development of the telecommunication market, but also for development of the economy in general. For such a development policy to become reality, it is indispensable to have an effective interconnection policy.

This is why interconnection in many countries is part of the national strategy for promoting competition and attracting foreign investment.

### **A.3 Interconnection from the perspective of operators and consumers**

Interconnection plays an important role for operators and consumers. For operators, it is crucial for capturing market share. For incumbents, faced with new competition after many years of monopoly, the temptation to restrict access to their network and protect the monopoly status quo is very strong. This can take the form of certain anti-competitive practices affecting interconnection, practices that are intended to inhibit or delay the entry of new operators on the market.

Examples of such practices include:

- prohibitive interconnection charges;
- refusal to grant access to some parts of the network;
- refusal to unbundle the network elements needed for effective interconnection, etc.

From the viewpoint of a new operator, the conditions of market entry are largely determined by the interconnection policy on the market in question, in particular the level of interconnection charges.

Interconnection is thus important for new entrants because it can allow them to offer their services on the market without the need for heavy capital expenditure.

From the viewpoint of the consumers, interconnection is indispensable for users in one network to be able to communicate with other users and make use of the full range of services, independently of their network of origin. It is thanks to interconnection between the many different kinds of network that residential and business users around the world have reaped numerous benefits in recent years.

Interconnection has made telephone access possible for anyone having a telephone or access to a public payphone anywhere in the world, in addition to access to the Internet and the services provided there (e-commerce, automatic banking and so on).

### **A.4 Interconnection and regulatory policy**

Interconnection allows countries to reach certain objectives, in that it makes it possible to:

- meet consumer needs, particularly in terms of the provision of a wide range of high-quality services;
- promote infrastructure development and innovation;

- contribute to the economic and financial development of the country by increasing the level of international investments;
- ensure network connectivity, and thereby service interoperability.

However, the effectiveness of interconnection depends on the regulatory framework and how it is applied.

While interconnection and liberalization are closely linked, and liberalization in principle requires less regulator intervention, the fact remains that the regulation of interconnection is essential. For example, it is impossible to imagine a successful transition from a monopoly telecommunication services market to a competitive one without regulatory intervention; anything else would result in cut-throat competition and the abuse of dominant market position, in a situation of non-viable competition.

However, interconnection is anything but a straightforward exercise; it calls for a high degree of cooperation between competing companies. In general there is an imbalance in negotiating positions that favours the incumbents over the new entrants. As already indicated, the former may delay or impede the entry of competitors in the marketplace by levelling high charges for interconnection, or by refusing to construct adequate interconnection capacity or to make it available. Competitive market functioning therefore generally requires the intervention of a regulator, whether it be to define the rules or to monitor that they are effectively being applied.

In implementing interconnection, operators and regulators are confronted with a number of problems; these challenges are not only commercial in nature, but also procedural and technical. They include the following:

- technical availability of interconnection with incumbent operators for different types of service (compatibility of services and networks);
- publication of an RIO;
- existence of guidelines for negotiating interconnection contracts;
- contract transparency;
- absence of discrimination between operators in granting access to interconnection services;
- the level, structure and basis for calculation of interconnection charges;
- equal access for clients of competitor networks;
- quality of interconnection;
- handling the costs of universal service;
- unbundling of network elements;
- existence of rapid, independent procedures for resolving disputes, and the means for enforcing the rules.

## **B Examination of regulatory tools relating to interconnection**

This section deals with the regulatory tools that can be used to make interconnection work for all of the players. These tools are thus of great importance for the opening of the market to competition. They concern:

- aspects relating to infrastructure access (access to the point of interconnection (POI), local loop unbundling, co-location and passive infrastructure sharing);
- aspects relating to competition (carrier selection, number portability, national and international roaming);

- aspects that are specific to dominant operators (concept of relevant market and significant market power in a defined relevant market (inspired in large part by the SMP concepts developed by the European Commission<sup>4</sup>), obligations applicable to dominant operators, expansion of the reference interconnect offer (RIO) to foster Internet development, and dealing with the specific problems of fixed-to-mobile calling);
- aspects that are specific to dispute resolution.

## **B.1 Aspects relating to infrastructure access**

### **B.1.1 Access to the point of interconnection**

The WTO reference paper of the General Agreement on Trade in Services<sup>5</sup> makes the following stipulations regarding the interconnection to be provided:

Within the limits of permitted market access, interconnection with a major supplier will be ensured at any technically feasible point in the network. Such interconnection is provided:

- a) under non-discriminatory terms, conditions (including technical standards and specifications) and rates and of a quality no less favourable than that provided for its own like services or for like services of non-affiliated service suppliers or for its subsidiaries or other affiliates;
- b) in a timely fashion, on terms, conditions (including technical standards and specifications) and cost-oriented rates that are transparent, reasonable, having regard to economic feasibility, and sufficiently unbundled so that the supplier need not pay for network components or facilities that it does not require for the service to be provided; and
- c) upon request, at points in addition to the network termination points offered to the majority of users, subject to charges that reflect the cost construction of necessary additional facilities.

It is clear from the above-cited reference paper from the General Agreement on Trade in Services and from international best practices that the opening of all interconnection points for access by competitors is essential.

To this end, operators must make proposals in their reference interconnect offers for direct or indirect access:

- to their subscriber-serving exchanges; and
- to their higher-echelon exchanges or an equivalent technical solution.

The timeline for opening automatic exchanges that were closed to interconnection must be announced in advance. This information is necessary for proper planning of the physical interconnection and hence for the proper financial management of the competitor. This is of the utmost importance for the competitors' business plans, particularly as concerns future capital expenditure and service offers.

---

<sup>4</sup> According to Article 14 of the Directive (2002/21/EC) on a Common Regulatory Framework of the European Commission: An undertaking shall be deemed to have significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers.  
[http://europa.eu.int/information\\_society/topics/telecoms/regulatory/new\\_rf/documents/l\\_10820020424en00330050.pdf](http://europa.eu.int/information_society/topics/telecoms/regulatory/new_rf/documents/l_10820020424en00330050.pdf)

<sup>5</sup> [http://www.wto.org/english/news\\_e/pres97\\_e/refpap-e.htm](http://www.wto.org/english/news_e/pres97_e/refpap-e.htm).

### **B.1.2 Local loop unbundling**

The local loop is that portion of the telecommunication network that is situated between the end subscriber's telephone connection and the subscriber's local switchboard.

Of course, the subscriber's terminal can just as well be a proprietary exchange (PABX), in the case of a professional or business subscriber, as a telephone, in the case of a residential subscriber.

In any event, the local loop ends at the MDF, where all the user lines come together before being connected to the telephone exchange.

The physical medium for the subscriber connections may be copper. The local loop is then wire-based; but it can also be radio-based, or wireless. Unbundling concerns only the former case.

In most countries, particularly in Africa, the existing local network belongs to the incumbent. For a new operator it is not economically advantageous to duplicate the entire existing network, even though that would offer the advantage of providing access to the end user and end-to-end control of the network. Access to the incumbent's local loop is necessary, on the other hand. Typically, the operator providing unbundling is the dominant, incumbent operator, while the purchaser of unbundled services is the new entrant, or competitor.

This is the case, for example, in European countries in which the incumbent has been obliged to give competitors direct access to its local loop. This is called local-loop unbundling.

Local-loop unbundling is important not only for competition in traditional telephone services but also to prevent the incumbent's monopoly from spilling over into the domain of high-speed data access (e.g. Internet), which is in rapid growth.

The obligation to provide unbundled access to the copper-based local loop concerns only those operators who have been notified by the national regulatory authorities (NRAs) as possessing market power (the concept of market power will be discussed in the section dealing with the specific case of dominant operators). Service tariffs should be applied in a transparent, non-discriminatory manner, and result in a level of remuneration compatible with development of the infrastructure.

In countries that have a national regulatory authority, the law normally confers on the latter the right to oversee unbundling; the NRA ensures that tariffs and operational conditions for local loop access are such as to encourage the establishment of fair, sustainable competition.

Three options for unbundling the local loop are generally recognized.

#### **Option 1: Full access**

In full access, the copper pair is leased to an outside operator on an exclusive use basis. The existing operator thus loses its control over relations with the customer for the provision of telecommunication services. Total unbundling of local loop access would allow the incumbent's competitors to provide their customers with a wide range of services, from voice telephony to broadband services based on advanced DSL technology.

#### **Option 2: Shared line access**

In this type of unbundling, the incumbent operator continues to offer telephony services, while at the same time an outside operator provides high-speed data transmission services over the same local loop, using its own high-speed transmission resources. The telephone traffic and data traffic are separated by means of a splitter that is placed before the incumbent operator's exchange.

### **Option 3: High-speed access services (bitstream access)**

- a) This type of access involves the incumbent operator installing high-speed access links that reach the end user, and leasing them to another operator providing high-speed services.
- b) To this end, the incumbent operator, which owns the local loop, may install ADSL equipment and systems of its choice on its local loop network.
- c) The main difference between this option and the other two is that the incumbent operator retains control of the equipment, over which the new entrant has no control.

#### **B.1.3 Co-location**

Co-location is an essential service for unbundling and for network interconnection. Co-location is one of the methods of obtaining physical interconnection between the networks. The operator wishing to set up the interconnection link itself its own equipment on the premises of the operator who is offering the service.

Physical co-location involves the installation of competing operators in the vicinity of the host operator's equipment and on the latter's premises; the two sets of equipment, that of the host and that of the guest, remain distinct. The guest operator maintains its own equipment.

Where this is not an option, there are two other possibilities for co-location:

- Virtual co-location consists of installing the competing operator's equipment on the premises of the host providing interconnection, together with the latter's equipment, but with no physical separation. Maintenance is carried out by the host operator for the guest operator. This is also known as co-mingling. This form of co-location involves significantly lower costs and shorter lead times than is the case with traditional co-location. For this reason it is very attractive for the non-incumbents wherever it is feasible.
- In-span co-location involves the connection point being situated between the two interconnected operators. The guest operator's interconnection link is connected to that of the host operator, at the interconnection point or the splitter at the self-contained routing centre. The interconnection point belongs to the host operator, which is responsible for maintenance. It may be created specially for the purposes of co-location, or use may be made of the nearest facility from the host operator's automatic exchange.

In the case of access to high-speed services by means of unbundling, co-location makes it possible to host DSL equipment. The host operator must grant access to the premises and ensure power and cooling.

#### **B.1.4 Passive infrastructure sharing**

Passive infrastructure sharing is a service that the operator of a public telecommunication network offers to another such operator so as to allow the latter to offer its services without duplicating the competitor's existing infrastructure. It may involve pylons, posts, ducts, and so on.

Access to passive infrastructure and elevated points is very attractive, in that the operators of public telecommunication networks can deploy their networks rapidly and under favourable economic and environmental conditions. To do so, it is necessary to share the infrastructures of competitor operators.

Likewise of great interest for the development of competition is the need for operators of public networks to have access to surplus capacity in the form of alternative infrastructure that may be available from the holders of public service concessions, electricity and water utilities, and rail transportation companies (bare cable access), which may include public and private-sector entities alike.

## **B.2 Aspects relating to competition**

### **B.2.1 Carrier selection**

Carrier selection allows the subscribers of an access provider or local loop to choose among available carriers for all or some of their calls (or, more generally, their communications, in the case of data transport).

#### **Advantages of introducing carrier selection**

The advantages of introducing carrier selection include:

- Increasing competition on the telecommunication market due to lower prices, with the possibility of choice and quality of service.
- The incumbent operator is put in a situation of falling retail prices for national and international calls.

#### **Three ways to implement carrier selection**

- Call-by-call access: The user can choose the desired carrier for each call at the time of dialling. This is commonly done by dialling a prefix before the number combination used by the local loop operator for routing the call.
- Carrier pre-selection: Under this system, all calls from the user go via a carrier selected in advance. There is therefore no need for the user to dial a special prefix with each call.
- Pre-selection with override: In this case, a preselected carrier is used by default for all the user's calls; however, the user can at any time dial a prefix to have a particular call routed by another carrier. Pre-selection with override is a way of combining carrier pre-selection and call-by-call access.

**There are two categories of access providers, which are considered separately.**

These are:

- Local loop access for PSTN services or equivalent ISDN services.
- The mobile cellular network for services like NMT, GSM and DCS1800.

In each of these network categories, the obligation to offer carrier choice can apply to all operators or merely to operators possessing significant market power (SMP).

#### **Two categories of carriers must be considered:**

- Infrastructure operators are carriers who own their exchanges and transmission lines for the carrier network.
- Switch-based resellers are carriers who own at least one exchange, but must lease the transmission lines for the carrier network.

#### **Principal restrictions applied to carrier selection:**

- No local calls: carrier selection is available for all calls except local calls.
- No calls to non-geographic numbers: carrier selection is available for all calls except calls to national special numbers such as freephone.
- No national calls: carrier selection is only available for non-national calls.

**The three main types of cost for implementing carrier selection are as follows:**

- General establishment costs are the costs associated with implementing carrier selection within the access network.

- Specific establishment costs are those costs resulting from the provision of carrier selection for a specific carrier.
- Administration costs are those costs which result from the provision of carrier selection to subscribers.

### **Options for allocating costs**

- Local loop operator bears all costs.
- Carriers bear all costs.
- Costs are shared according to a scheme established by the regulator.
- The cost sharing scheme is negotiated between the parties.
- Costs are charged directly to the consumer.
- Each party pays its own costs.

### **Subscriber billing**

There are two possibilities for billing carrier choice users.

- Single invoice: the consumer receives a single invoice from the local loop operator, which includes charges for carrier choice.
- Separate invoices: the consumer receives separate invoices from the local loop operator and the carriers.

However, extensive international experience with pre-selection as shown that it is necessary for a code of good conduct to be set up separately so as to protect the interest of the consumers. One of the most frequent abuses is known as slamming: imposing pre-selection without the consumer's consent.

## **B.2.2 Number portability**

Number portability is defined as the possibility for users to retain the same subscriber number, independently of the operator scheme chosen, even in the case of a change of operator.

Thus it concerns the freedom of subscribers to keep their numbers when they move their subscription to a new geographic location, change to a different telecommunication network operator, or change their telephone service.

### **B.2.2.1 Types of number portability<sup>6</sup>**

Generally speaking, a subscriber's number is said to be "ported" when the subscription undergoes a major change without losing the assigned number (or numbers). Three types of portability are distinguished:

- service portability
- service provider portability
- location portability.

It is also possible to have a combination of these different types of portability.

---

<sup>6</sup> ITU-T Recommendations, Q-series: Number portability – Scope and capability set 1 architecture.



## **A – Location portability**

Location portability applies only to geographic numbers, as non-geographic numbers, by definition, do not contain any information about the location. Also, location portability is an issue that concerns only the network operator, unless it is combined with other types of portability.

Different levels of location portability have implications of varying complexity:

- Porting within the switching area and within the charging area does not affect either routing or billing in the network.
- Porting within the switching area but outside the charging area affects billing but not routing in the network.
- Porting outside the switching area but within the charging area affects routing but not billing in the network.
- Porting outside the switching area and outside the charging area affects both billing and routing in the network.

Geographic numbers are numbers based on a service being offered in a specific geographic area; they give the caller information which can be used to determine the call tariff. Operators typically assign geographic numbers to household and business users of PSTN/ISDN as a function of their network topology. The numbers are usually allocated in blocks (of 10 000 numbers, for example) to local switching centres within a given service area. For this reason, there may be restrictions on location portability; nonetheless, the implications of porting must be studied.

Porting has implications for billing, in that the more significant digits of the number that has been ported no longer bear a precise relation to the location of the terminal or client for charging purposes. Routing may be affected, too, because the significant digits can no longer be used to determine the switching centre to which the number is connected.

## **B – Service portability**

Service portability is an option offered by an operator, allowing the latter to extend the range of services proposed. However, the calling charges must not be affected, for example, if a freephone number is ported to a paying service, unless callers are warned that additional charges exist.

## **C – Service provider portability**

Service provider portability is possible with geographic or non-geographic numbers. It allows customers to change service providers while retaining the same number.

### **B.2.2.2 Purpose of number portability**

The introduction of competition in the telecommunication sector offers users the possibility of benefiting from various offers for their telecommunication services. However, to freely exercise their choice, they must be able to keep their telephone number when they change operators.

The technical characteristics of number portability should be such as to ensure the following:

- 1) Flexibility of the architecture: the architectures chosen to handle number portability should leave network operators a sufficient degree of flexibility regarding the manner in which each architecture is implemented, and should be compatible with the utilization of equipment from a variety of vendors.
- 2) Transparency: the system providing portability must be sufficiently transparent, both for the porting customers and for the others.

- 3) Quality: the system providing portability should not lead to anything more than a very slight degree of call degradation (or none at all) with reference to the system used for non-ported numbers. This applies to the post-dialling delay as well as transmission.
- 4) Interconnection: all network operators offering portability in a given geographical area must be interconnected, either directly or via a transit link, and terminate calls. The choice between direct interconnection and a transit interconnection is a business decision.

### **B.2.3 National roaming**

National roaming is the service offered by cellular network operator A to another such operator B, allowing the users of B to utilize A's network where coverage by B is not available.

National roaming is technically feasible independently of the cellular technology used by the operators, including third generation networks.

Current GSM coverage is such that some regions are better covered by one operator than another. National roaming allows the users in one of the member countries to make use of the service over a good portion of the national territory, thereby offering maximum coverage of the population.

### **B.2.4 International roaming**

International roaming is of great importance for an economic region such as UEMOA/ECOWAS, the citizens of which need to be able to travel for the purposes of conducting business, engaging in commerce and otherwise participating in its economic life. One of the main advantages of the GSM network is that it allows subscribers to originate and receive mobile calls outside the country of the subscriber's home operator. This is made possible by roaming contracts between the subscriber's cellular operator and foreign operators. In general, operators from country A conclude roaming contracts with different cellular operators from country B to allow their customers to use the service throughout the territory of country B with the best possible quality.

The members of the GSM Association have adopted an overall framework for roaming contracts called SITRA<sup>7</sup> (Standard Terms of Roaming Agreements), along with a method of determining tariffs for inter-operator traffic called IOT (Inter-Operator Tariff). A roaming contract stipulates what kinds of service are offered and at what price. The services may include voice, SMS and data. In the case of major operators (who may have roaming contracts for several countries), the number of contracts can lead to significant overhead costs relating to inter-operator billing. In those cases, an indirect international roaming contract may be an option, involving the services of a roaming broker<sup>8</sup>. The broker manages access and billing between operators, and may be considered as an interface on the operator side. In this way, an operator can take advantage of economies of scale, signing a contract with a broker and thereby gaining access to several other operators at one stroke.

#### **B.2.4.1 International roaming tariffs**

The tariffs are typically based on costs. Operators bill their customers on the basis of their roaming contracts with foreign operators. A profit margin is also included; this can be quite substantial in some cases.

---

<sup>7</sup> <http://www.gsmworld.com/documents/wlan/ir61.pdf>. This document is a technical guide that can act as a technical reference for a roaming contract.

<sup>8</sup> [http://www.comfone.ch/\\_main\\_pages/news/\\_oldfiles\\_comfone/\\_oldWeb/www-support/company/broker.htm](http://www.comfone.ch/_main_pages/news/_oldfiles_comfone/_oldWeb/www-support/company/broker.htm).

The International Telecommunications Users Group (INTUG)<sup>9</sup> conducted a survey on international roaming prices during the Olympic games at Athens.

The survey showed that operators within the same countries charged different tariffs, which could not be explained by reference to the costs incurred for the respective home networks.

By way of an example, here are the tariffs (in euros) that were charged for an SMS by Swedish operators:

operator	receive	send	exchange rate	URL (source)
tele2comviq	0.00	0.13	1.00	<a href="http://www.comviq.se/">http://www.comviq.se/</a>
telia mobile	0.00	0.17	1.00	<a href="http://www.teliamobile.se/">http://www.teliamobile.se/</a>

According to the same survey, prohibitive GPRS roaming charges effectively destroyed users' incentive to use these services.

Tariffs are greatly increased when a roaming-to-roaming call is made.

Prepaid service has further complicated customer billing, although systems such as CAMEL make it technically feasible to offer international roaming for this category of subscribers.

Like INTUG, the European Commission has been studying roaming tariffs in Europe, since 1997. In 2003, the Commission decided that the international roaming market should be considered as a relevant market (a full market, in other words), as indicated in its recommendation of 11 February 2003 (market 17)<sup>10</sup>. It was expected to identify, in May 2005, what action should be taken to combat abuse by some European operators.

For example, an inquiry by the Commission showed that, from 1997 to the end of September 2003, Vodafone<sup>11</sup> had abused its dominant position on the British market in the provision of **wholesale international roaming services** via its network by charging other mobile network operators unfair and excessive prices (inter-operator tariffs).

### B.3 Aspects that are specific to incumbent operators

#### B.3.1 Concept of relevant market and significant market power on a relevant market

The telecommunication markets in the countries of West Africa have recently opened up to competition, which led to the creation of most of the regulatory agencies in those countries. Some of those regulators are government agencies (PTT ministry). Competition is thus just beginning to take shape, and most of the operators in fixed telecommunications are the historically dominant incumbents. This state of affairs reinforces the imbalance in negotiating positions between incumbents, who in many cases are vertically integrated, and the new entrants.

<sup>9</sup> INTUG - Olympics 2004, International mobile roaming charges, 2004, URL: <http://www.intug.net/surveys/gsm/olympics/>.

<sup>10</sup> European recommendation on relevant markets: [http://europa.eu.int/information\\_society/topics/ecom/doc/useful\\_information/library/recomm\\_guidelines/relevant\\_markets/i\\_11420030508fr00450049.pdf](http://europa.eu.int/information_society/topics/ecom/doc/useful_information/library/recomm_guidelines/relevant_markets/i_11420030508fr00450049.pdf).

<sup>11</sup> <http://europa.eu.int/rapid/pressReleasesAction.do?reference=IP/04/994>.

As long as there is no effective competition as defined in the law on competition (European practice<sup>12</sup>), it is important for regulation to be asymmetric, with regulatory obligations imposed on the operator which possesses significant market power in a given relevant market. This is known as "ex ante" regulation.

In the following, we shall attempt to briefly define the concepts of relevant market and significant market power in such a market, without, however, going into great detail. These notions are rooted in classic regulatory theory. The first step, for the regulatory authority, is to identify the potential relevant market and the dominant operators in those markets.

The concept of a relevant market was developed by economists working for the competition authorities in the United States of America in the 1980s.

A relevant market, or reference market, is defined as the locus where supply and demand for products or services which buyers or users consider to be interchangeable are able to meet.

According to a decision of the European Commission of 29 July 1987, a relevant market is "the area of competition in which the market power [of the undertaking] is to be judged".

Under this definition, the relevant market is to be determined based on competition. A relevant market is one where there is competition as far as the products or services (substitutability) or the geographical zone (geographic market) are concerned.

At this stage, the analysis is focussed on the substitutability of products or services, reflecting a competitive constraint facing operators in a competitive market. According to the European Commission's Competition Directorate General, substitutability is a measure of the degree to which products can be considered to be interchangeable from the viewpoint of producers or consumers.

Substitutability can be found on the demand side or on the supply side.

To facilitate analysis of the substitutability of products or services, the regulator can use the hypothetical monopoly test, which involves examining the effect that a small but significant non-transient price increase would have on consumers of a product or service. This test is only used for products or services for which the prices are not regulated but determined freely.

Substitutability on the demand side is, from an economic point of view, the significant, direct element that can be used to assess a relevant market and evaluate the significant influence of an operator on the market. For example, an operator cannot be considered as dominant if changing the prices it charges for its products or services leads to its customers switching to another operator's products or services.

The relevant market is at the heart of the competition law analysis used to determine if there is a dominant position or not.<sup>13</sup>

Thus, an operator is said to be dominant in a predetermined relevant market if it is able to prevent the development of effective competition in that market thanks to its freedom to act independently of competitors, subscribers and users.

---

<sup>12</sup> Directive 2002/21/EC of the European Parliament and of the Council of 7 March 2002 on a common regulatory framework for electronic communications networks and services (Framework Directive).

<sup>13</sup> Guidelines on market influence determinations. Oftel. March 2000.

In the short term (to 2006), the following recommendations may be made:

Following the practice in Europe, we recommend that the regulatory authorities in West African countries:

- determine the relevant markets;
- collect information about each identified market so as to measure the extent of dominance;
- consult with the concerned players on the telecommunication market for the purpose of analysing those markets;
- seek the advice of the competition authority, where one exists;
- consult with the concerned players in the telecommunication market about obligations to be imposed on dominant/SMP operators (remedies such as the obligation to use cost-oriented tariffs) for each relevant market.

Once the permanent structures of the UEMOA/ECOWAS Commission have been put in place (corresponding to the structures of the European Commission), with consultation from the WATRA (the counterpart of the European Regulators Group), the following recommendations should be considered:

Following the practice in Europe, we recommend that a UEMOA/ECOWAS commission (corresponding to the European one) produce:

- directives adapted to the individual cases of the countries in question (like the European directives);
- guidelines for market analysis and assessment of market power;
- a recommendation on relevant markets in products and services in the telecommunication sector that can be regulated *ex ante*.

The authority should analyse the market in order to determine whether it is competitive or not and then draw the necessary consequences about regulatory obligations: if the analysis shows the market to be competitive, then any existing obligations can be abolished, otherwise the body must identify the dominant/SMP operators and impose appropriate regulatory obligations.

### **B.3.2 Obligations that may be applied to dominant/SMP operators**

#### **B.3.2.1 Obligation to set up cost accounting suitable for regulatory purposes**

One of the urgent requirements for the telecommunication markets in West Africa is for the dominant operators to make the transition to cost accounting in order to meet the requirements of regulation. Without cost accounting, it is difficult to determine interconnection costs, which are the main source of disputes and also the principal obstruction to the entry of new operators. The regulatory authorities in the member countries should consult with the market players and make use of external expertise so as to have the existing operators rapidly put in place cost accounting, while respecting the principles of separate accounting.

It is recommended to select an accounting model based on activity-based costing (ABC)<sup>14</sup>.

Traditional cost calculation systems based on the allocation of common and indirect costs on the basis of production volume are not adequate to a production environment in which there is a substantial increase in indirect and common costs by comparison with direct production costs (which is the case in the telecommunication industry). Such traditional cost calculation systems can

---

<sup>14</sup> Johnson, H. T. and Kaplan, R. S., *Relevance lost: The rise and fall of management accounting*, Boston: Harvard Business School Press, 1987.

result in misguided strategies and decisions in an environment characterized by heightened competition. An ABC-type accounting system makes it possible to address those problems.

By contrast with the traditional approach, the ABC method involves distinguishing between the necessary services and measuring their impact on costs.

The ABC method allows one to see the big picture for the company, by showing the processes within which various services are involved. Once the interdependencies have been understood, the role of each activity in the value chain can be determined.

The ABC method can be part of a multi-year method allowing costs and margins to be calculated throughout the product's life-cycle.

Its objectives go beyond the general chart of accounts. While it can be used to show how much each activity consumes in terms of resources, it can also be an intellectual tool for managing resource allocation to the various activities.

Causes can be traced more accurately, thanks to this method which shows how resources, activities and products are related. The perspective which it gives on performance is a more global one, because it reveals the processes.<sup>15</sup>

This notion is based on the following principles:

It is the notion of value that lies at the heart of this approach to accounting by activities, starting with the connection between activities and products: what activities are required to give value to the products, and how much does each product cost?

The method of activity-based costing generally involves the following steps:

- A. Identification of activities
- B. Evaluation of resources consumed by each activity
- C. Definition of cost drivers
- D. Allocation of activity costs to cost driver

Regulatory authorities can base themselves on a recommendation of the European Commission of 8 April 1998<sup>16</sup> and apply the following principles of accounting separation:

«Accounting separation should be based on the principle of causation: that is, costs and revenues should be allocated to those services or products that cause those costs or revenues to arise. This requires the implementation of appropriate and detailed cost allocation methodologies.

In practice, this requires that operators:

- review each item of cost, capital employed and revenue,
- establish the driver that caused each item to arise, and
- use the driver to allocate each item to individual businesses.

All allocations may be subject to review by NRAs.

Each item of cost and revenue must be allocated to the products and services provided by operators. In the case of revenue, it is anticipated that most, if not all, revenues can be

---

<sup>15</sup> HERTERICH Pierre-Alexandre, MAROUANI Laetitia, TUAL Lucie, L'Activity Based Costing (ABC) en France, quinze ans après, mythe ou réalité ? Nicolas Berland 2001-2002.

<sup>16</sup> Commission Recommendation of 8 April 1998 on Interconnection in a liberalized telecommunication market. Part 2: Accounting separation and cost accounting.

allocated directly to those products or services to which they are related. This is not the case for costs, however, because a relatively high proportion of the costs of operators is shared between different products and services.»

This accounting should also make it possible to set up a cost nomenclature to be published annually by the regulatory authorities prior to submission of the reference interconnect offer for approval. It should therefore show, in line with international best practices adapted to the level of competition in West Africa, the costs and revenues for the following components:

- Core network (switched infrastructure)
- Local access network (local loop infrastructure)
- Retail
- Other activities

If they consider it necessary, the regulatory authorities may request a further breaking down of accounts within these broad lines (e.g. by separating mobile, fixed and international communications).

### **B.3.2.2 Calculation of interconnection rates**

The same general principles applicable to cost accounting for dominant operators also apply to the calculation of interconnection rates. Clearly, without cost accounting, it is difficult to set interconnection rates and, *a fortiori*, to ensure that they are cost-oriented.

However, international and in particular European best practices advocate the following principles:

- cost orientation implies that the price billed for provision of a service should reflect the cost that supplying the service entails;
- the costs taken into account must be relevant, i.e. demonstrate a causality relationship – direct or indirect – with the interconnection service provided;
- the costs taken into account must serve to increase long-term economic efficiency, i.e. the costs considered must take into account investments for network renewal, based on the best available technologies in the industry and optimum network dimensioning, sustaining quality of service;
- rates include a fair contribution, in line with the principle of proportionality, to common costs associated with the provision of both interconnection and other services, while respecting the principles of cost relevance;
- rates shall include a normal return on investment (cost of capital);
- rates may be modulated by time of day to take account of congestion of the operator's overall network;
- unit rates applicable to overall network components are independent of volume or of capacity utilized for such components.

### **Problem of calculating capital for emerging countries in general and the ECOWAS/UEMOA countries in particular**

The cost of capital is the minimum rate of return that investments must yield in order to enable the operator to pay its debtors and satisfy its shareholders' demands in terms of profitability. This rate is proposed by the operator, but validated by the regulatory authority.

The aim is to set an appropriate rate of return for interconnection operations. For this purpose, a standard return for a company involved in interconnection has to be identified. Such a standard can

be derived either from market data or on the basis of observed rates of return of other comparable operators.

The value used can have a decisive impact in the calculation of interconnection rates. Simulations have shown that, using a long-range incremental cost (LRIC) model, a 1 per cent variation in the cost of capital can increase costs by up to 4 per cent.

The most commonly used formula is the weighted average cost of capital (WACC), whereby one calculates K, a weighted average of:

- the cost of equity, corresponding to the rate of return required by the operator's shareholders for the activity in question;
- the cost of the operator's debt.

This weighting is based on the operator's target debt structure.

Thus, the cost of capital is expressed by the equation:

$$K = K_e * E/(E+D) + (1-T) * K_d * D/(E+D)$$

where:

- K: Average weighted cost after tax
- K<sub>e</sub>: Cost of equity
- K<sub>d</sub>: Cost of debt
- E: Market value of equity
- D: Market value of debt
- T: Corporate tax rate.

However, several items of information are necessary to calculate this rate: cost of debt, cost of equity, different risk rates, etc. Such information is not available in the ECOWAS/UEMOA Member States. This problem is even more acute when we come to calculate the cost of equity, for which a number of parameters are required that are difficult to determine without data on the stock market value of telecommunication companies in the countries concerned. There is virtually no information of this kind available in the Member States covered by this study (sector  $\beta$ , overall market premium, country risk, etc.)<sup>18</sup>. It is due to this major obstacle that few regulators in Africa as a whole and West Africa in particular have been able to calculate the cost of capital to be used in calculating interconnection rates (ANRT of Morocco<sup>19</sup> and ATCI of Côte d'Ivoire<sup>20</sup>).

### **B.3.2.3 Publication of a reference interconnect offer (RIO)**

The dominant/SMP operator is required to publish annually a RIO for interconnection, reflecting its price list and the technical services offered.

The RIO should contain at least the following services:

- services for the routing of switched traffic (call termination and origination);
- leased lines;

<sup>18</sup> <http://www.vernimmen.net/ftp/cmpcpaysemergents.pfd>. *Le coût du capital dans les pays émergents*; Article by Franck Bancel and Thomas Perrotin.

<sup>19</sup> See Decision ANRT/DG/04/03 of 28 November 2003 on the cost of capital used for determining interconnection rates for the company Itissalat Al Maghrib for 2004.

<sup>20</sup> See Decision 01/ATCI/DG/DEP revising interconnection agreements between Côte d'Ivoire Telecom and cellular mobile telephone operators.



- interconnection links;
- supplementary services and implementation arrangements therefor;
- description of all interconnection points and conditions of access thereto, for the purposes of physical co-location;
- comprehensive description of proposed interconnection interfaces, including the signalling protocol and possibly the encryption methods used for the interfaces;
- technical and tariff conditions governing the selection of transporter and portability.

#### **B.3.2.4 Negotiation of the interconnection contract**

The dominant/SMP operator is required to negotiate an interconnection contract (sometimes also called an agreement) covering all the services on offer, whether or not they are included in its reference interconnect offer. In the event that negotiations fail, the regulator must intervene to settle the conflict in order to ensure prompt conclusion of the interconnection contract. The contract shall contain at least the following services<sup>21</sup>:

- A. All the necessary measures to guarantee fundamental requirements, in particular: maintaining network integrity; interoperability of services, including end-to-end quality of service; data protection and confidentiality of information processed, transmitted or stored.
- B. Technical aspects:
  - conditions of access to the various available services, interconnection switches and transmission capacities;
  - conditions for sharing installations associated with physical network connection;
  - measures taken to ensure equal access for users of different networks and services, equivalent formats and number portability;
  - full description of the interconnection interface;
  - testing procedures for the operation of interfaces and interoperability of services, and certification of the data protection methods;
  - designation of interconnection points, their location, their characteristics, and:
    - description of the physical arrangements for interconnection thereto;
    - charging information provided at the interconnection interface;
  - traffic routing and planning arrangements and capacities at interconnection points, including:
    - principles governing routing of calls from one network to another;
    - interconnection capacity command and testing rules;
    - test schedules for switching, transmission and signalling;
    - service implementation condition: traffic forecasting and interconnection interface installation arrangements, procedure for identification of leased line ends, lead time for service availability;
    - quality of services provided: availability, security, efficiency, synchronization;
    - fault localisation, clearance and rectification procedures;

---

<sup>21</sup> David W. Bartell, Carrier Services Contracts, published by BWCS, 2003.

- arrangements governing reciprocal dimensioning of interface equipment and common elements in each network in order to maintain the quality of service specified in the interconnection contract;
- information to be shared by the parties on the configuration of their respective networks and the equipment and standards used at interconnection points, in order to facilitate, speed up and enable planning of their interconnection requests;
- technical measures necessary for implementing supplementary services;
- future projections concerning primarily expansion and/or removal of interconnection points, network development, improvements in quality of service;
- schedule of meetings between the two parties for detailed examination of all the technical clauses provided for above and/or any necessary changes for improving interconnection, for each interconnection point.

C. Administrative aspects:

- applicable procedures when one or other party proposes changes to the RIO;
- any intellectual and industrial property rights;
- conditions and arrangements to be followed for partial or total suspension of interconnection;
- duration of the contract and re-negotiation conditions.

D. Financial aspects:

- commercial and financial relations, in particular billing and collection procedures and payment conditions;
- definition and limits relating to liability and indemnification of operators.

### **B.3.3 Expansion of the reference interconnect offer to promote development of the Internet**

The African continent (South Africa apart), and the ECOWAS/UEMOA countries in particular, display a very low Internet services penetration rate in comparison with the world average, and nowhere near the penetration rate in North America of one user per four inhabitants.

A challenging effort is required to develop Internet in the countries concerned. The statistics for 2003 show that the number of users stands at 48 000 in Burkina Faso, 100 000 in Côte d'Ivoire, 30 000 in Gambia, 195 000 in Ghana and 225 000 in Senegal.<sup>22</sup>

If we look at the average income of potential users, Internet use remains confined to a privileged few. One of the causes of this situation is access cost. Most countries with a high Internet penetration rate have relatively low access costs (e.g. in Europe). The costs of access to Internet comprise the cost of telephone calls and the cost of access to Internet service providers (ISP). In the industrialized countries, where communications markets are liberalized, the costs of both calls and ISP services are relatively low. In the countries we are considering, on the other hand, the costs are high and disproportionate in relation to the average income of Internet users, especially for those using an ISP located outside the local calling area.

There is a close correlation between Internet development and liberalization of fixed services. With the exception of Ghana<sup>23</sup>, all fixed services in these countries are still provided under a monopoly

<sup>22</sup> [http://www.itu.int/ITU-D/ict/statistics/at\\_glance/af\\_ictindicators.html](http://www.itu.int/ITU-D/ict/statistics/at_glance/af_ictindicators.html).

<sup>23</sup> Jérôme Bezzina. Does dominant regulatory model fit with African specificities? Communications strategies, No. 55, 3rd quarter 2004, pp 77-118.

regime. The introduction of competition will enable users to access Internet at more affordable prices and with higher quality.

**The ECOWAS/UEMOA countries must not only prepare but also anticipate liberalization and put in place the regulatory tools described above: unbundling of the local loop, co-location, introduction of new services in the reference interconnect offer , and introduction through competition of new access technologies such as Wimax for rural access.**

No statistics are available on the use of broadband in the ECOWAS/UEMOA countries. Looking at the tentative state of affairs in North Africa, it may be assumed that, in the countries covered by this study, the penetration of xDSL-type high-speed systems is certainly very low. For example, ADSL provision is currently monolithic (single service) and does not guarantee quality of service (bit rate, availability, recovery times and maximum waiting time for connection).

### **B.3.4 Specific problem of fixed-to-mobile calls**

The issue of termination of a fixed-to-mobile call has been addressed by various regulators worldwide and by ITU<sup>24</sup>. The international benchmark shows that artificially high mobile termination rates are used by mobile operators to subsidize subscriber lines and on-net traffic (within the home network). In other words, the fixed service contributes significantly to these two subsidies. To take an example, studies carried out by the Dutch regulator Independent Post and Telecommunication Authority (OPTA)<sup>25</sup> and the UK regulator, at the time OFTEL<sup>26</sup> (now the Office of Communications (Ofcom)) came to the same conclusion, which prompted the regulator to call for a reduction in mobile termination tariffs. On 2 October 2003 the Spanish regulator, the Comisión del Mercado de las Telecomunicaciones (CMT) undertook a similar action vis-à-vis AMENA<sup>27</sup>, an operator recognized as dominant in the national interconnection market. The European Commission has also recommended that mobile termination tariffs be cost-oriented for dominant operators.

In this connection, the French Electronic Communications and Posts Regulatory Authority (ARCEP) has considered that cost-orientation of tariffs for interconnection of mobile operators must comply with the following principles:

- cost-orientation must take into account mobile communication market imbalances and their gradual elimination;
- it must take account of the situation of all mobile operators, whether or not they exert a significant influence on the market, in order not to place excessive pressure on the least developed operator;
- it must be implemented in a stage-by-stage process in order, *inter alia*, to avoid "stop and go" effects on prices.

---

<sup>24</sup> Workshop on fixed-to-mobile interconnection, ITU, Geneva, 2000.

<sup>25</sup> The regulation of mobile terminating tariffs, OPTA, 19 December 2001. OPTA/IBT/2001/203784: [www.opta.nl](http://www.opta.nl).

<sup>26</sup> Reports on references under section 13 of the telecommunications act 1984 on the charges made by Vodafone, O<sub>2</sub>, Orange and T-Mobile for terminating calls from fixed and mobile networks. Volume 1 Summary and conclusion: [www.oftel.gov.uk](http://www.oftel.gov.uk). Competition commission publications. Remedies letter and statement. 22 July 2002: [www.competition.commission.gov.uk](http://www.competition.commission.gov.uk).

<sup>27</sup> Resolution on the adoption of preventive measures for the temporary setting of interconnection prices for Retevisión móvil S.A. (No. MTZ 2003/1386). CMT, 2 October 2003 [in Spanish]: <http://www.cmt.es>.

### B.3.4.1 International benchmark as an example

Case of the United Kingdom: Ofcom has considered that mobile termination tariffs shall be regulated in the interest of the consumer. The regulator has decided that termination tariffs should be reduced by 12% by 2006. This decision was endorsed by the office of fair trading.

Case of France: Orange France, SFR and Bouygues Télécom will be obliged to reduce their wholesale tariffs as from 1 January 2005, by 16.3% in the case of Orange France and SFR, and by 17.3% for Bouygues Télécom. A further 24% reduction will be effected on 1 January 2006. A third reduction is already scheduled for 1 January 2007, the magnitude of which will be determined in 2006.

	Termination charge for a call of national origin Average price in EUR cents/min before tax*		
	2004	2005	2006
Orange/SFR	14.94	12.50	9.50
Bouygues Télécom	17.89	14.79	11.24

\* Consumer profile - 75% peak rate and 25% off-peak rate service within a subscriber area.  
Source: ARCEP France.

Case of Portugal: ICP Autoridade Nacional de Comunicações (ICP-ANACOM) decided in 2001 to set a "reasonable" mobile termination tariff. In relation to the 1999 tariff, the mobile termination tariff was reduced by 27%. In so doing, the regulator signalled its intent to protect the consumer from mobile network externality effects and to balance competition between the fixed and mobile networks.

### B.3.4.2 Case of the ECOWAS/UEMOA countries

In Africa, competition was introduced in the mobile sector at the beginning of the new millennium. Mobile telephone density has in some cases quadrupled, while fixed teledensity remains low (as an illustration, the 2003 data published by ITU show a mobile-to-fixed teledensity ratio of 350% for Burkina Faso and almost 800% for Gabon)<sup>28</sup>. However, if we look at termination on the mobile network of calls originating in the fixed network, the rates applied appear overall to be abnormally high in relation to termination on the fixed network.

This has a direct impact on fixed-to-mobile retail tariffs, which depend to a large extent on those rates. It may thus be concluded that fixed network subscribers subsidize mobile subscribers, because mobile termination tariffs far exceed costs.

It is worth noting in this regard that several African countries have had to deal with at least one dispute relating to fixed-to-mobile interconnection<sup>29</sup>.

Furthermore, given that the regimes in force in the ECOWAS/UEMOA countries are of the calling party pays (CPP) type, cellular operators therefore have no incentive to revise these tariffs

<sup>28</sup> [http://www.itu.int/ITU-D/ict/statistics/at\\_glance/af\\_ictindicators.html](http://www.itu.int/ITU-D/ict/statistics/at_glance/af_ictindicators.html).

<sup>29</sup> See ITU, 2004, pages 18-19 for analysis of disputes in Botswana, Burkina Faso, Kenya, Mozambique and Tanzania.

downwards. The corollary of this situation is the club effect<sup>30</sup> and hence a shift from fixed to mobile and an increase in on-net traffic, as well as encouraging the use of GSM gateways that divert PABX traffic from the fixed network towards the mobile network, thereby aggravating the financial situation of fixed operators, particularly those for which fixed network operation is their sole business. The process of liberalization of the fixed market scheduled for 2007 will thus have to attach the greatest possible importance to this fixed-mobile issue.

Nevertheless, it is interesting to note that in some Member States, paradoxically, the fixed termination rate is higher than the mobile termination tariff, even though the costs of terminating a call on the mobile network are no doubt higher. This is the case in Senegal, Burkina Faso, Mali, Gabon and Côte d'Ivoire<sup>31</sup>. This results in high retail tariffs for mobile-to-fixed calls and encourages the club effect, thus serving to increase mobile teledensity at the expense of fixed.

#### **B.4 Aspects specific to the settlement of disputes**

The settlement of interconnection disputes is one of a regulatory authority's most important responsibilities. Such disputes have to be settled promptly and in an entirely transparent manner by an independent committee with no vested interest or bias in favour of either party.

In a market of "n" interconnected operators, the number of contracts would amount to  $n \times [(n-1)/2]$ . Hence the number of disputes rises quickly with the number of interconnected operators. Such disputes can arise prior to or after signature of the contract. It should be noted that most disputes relate to tariff matters. The regulator, as emphasized in section C.3.2.2, must have the requisite calculation tools and competence to deal promptly with tariff problems, which can seriously affect the business plan of the injured party.

From a regulatory point of view, a referral procedure should be published by the regulatory authority in order to make the dispute settlement procedure transparent both for existing operators and for potential operators, when the market is opened up.

This referral procedure should stipulate:

- the necessary documents and evidence to be produced;
- conditions governing receivability;
- procedure for examination of the dispute, which shall include a conciliation/mediation stage in order to try to resolve the problem amicably;
- the judgement process (filing of the appellant's request to the defendant and vice-versa until the arbiter decides) and hearing of the two parties to the dispute;
- provision for external expertise, preferably paid for by the regulator;
- the maximum time-frame allowed for consideration and resolution of the dispute;
- the possibility of an action initiated by the authority itself, and of injunction against an operator in the event of serious problems requiring urgent solution.

It should also be stressed that, pursuant to the provisions of the WTO General Agreement on Trade in Services, the regulator must be independent and, therefore, the committee that will hand down

---

<sup>30</sup> The effect of "over-charging" of outgoing calls is to make the operator's network appear expensive and encourage consumers who can coordinate their choices (members of a family, a group or a business, etc.) to concentrate all their subscriptions in a single network with more competitive on-net tariffs. This is what is called "club effect".

<sup>31</sup> Jérôme Bezzina. Does the dominant regulatory model fit with African specificities? Communications strategies, No. 55, 3rd quarter 2004, pp. 77-118.

the decision on the dispute shall be composed of persons appointed *intuiti personae* recognized for their competence, and having no vested interest in any party to the dispute.

The regulatory authorities, through WATRA, should together offer a whole range of competencies and constitute a data bank of cases of disputes arising in Member States and the resolution thereof. This would facilitate prompt settlement of conflicts on the basis of precedents in similar cases already resolved by another ECOWAS/UEMOA authority. This could be set up using the Internet with the assistance of WATRA, initially along the lines of ITU's Global Regulatory Exchange (G-REX) or the Group of European Regulators (GRE). It should be noted that ITU plans to create a database of regulatory decisions covering all ICT dispute settlements, which would be accessible online by all Member countries.

### **C Existing regulatory framework for interconnection**

The objective in this section is to examine the regulatory framework for interconnection in the UEMOA/ECOWAS countries, with a view to identifying whether and how it might be adapted for the new context of a fully liberalized telecommunication market. Ideally, this should be based on an exhaustive examination of the existing telecommunication and interconnection-relevant legislation of all the member countries. However, the interconnection laws of Burkina Faso and of Mali, which we consider as benchmarks representative for this legislation, were the only ones to which we were able to gain access. We shall therefore examine and comment on the different articles of those two laws, and use them to make recommendations based on the best European and international practices.

The regulatory framework should provide for interconnection on fair terms, in line with international recommendations such as those of WTO, which makes the following stipulations about interconnection in a reference document<sup>32</sup>.

- Interconnection with a major supplier is to be ensured at any technically feasible point in the network under non-discriminatory technical and pricing terms.
- Interconnection negotiation procedures must be open to the public.
- The transparency of interconnection arrangements must be assured.
- Dispute resolution (within a reasonable period of time) before an independent body must be available at all times.

---

<sup>32</sup> [http://www.wto.org/english/news\\_e/pres97\\_e/refpap-e.htm](http://www.wto.org/english/news_e/pres97_e/refpap-e.htm).

## CASE STUDIES: BURKINA FASO AND MALI

### C.1 Burkina Faso<sup>33</sup>

#### Article 1

*For the purposes of this Decree, the following definitions shall apply:*

a) **Dominant operator:** any operator, as defined in Article 5 (14) of Act No. 051/98/AN of 4 December 1998 on reform of the telecommunication sector, whose market share (percentage revenue of that operator as compared to the revenues of all operators) for a given service or set of compatible services is at least one-third;

**Comment C1.1:** In order to work in an environment of completely open competition, this article should include further definitions relating to carrier selection, number portability and co-location. It should be noted that the definition of a dominant operator given here is ambiguous because it is not based on the definition of a relevant market over which the operator is dominant.

#### Article 2

*The present Decree, adopted in application of Article 20 of Act No. 051/98/AN of 4 December 1998 on reform of the telecommunication sector, sets forth the general conditions for telecommunication network and service interconnection.*

*The interconnection of telecommunication networks serves to:*

a) *bring all networks and services within a national network of Burkina Faso;*

**Comment C1.2:** The decree explicitly states that interconnection between networks established on the territory of Burkina Faso is meant. For international interconnection, this means that the decree cannot be invoked in case of a dispute between operators.

#### Article 3

*To that end, any operator receiving authorization ... other operators of compatible services.*

*Only the dominant operators are obliged to respond favourably to requests for interconnection from other operators of compatible services.*

**Comment C1.3:** In principle, interconnection should be mandatory for all operators having a licence to operate a network open to the public. The present article restricts the obligation to dominant operators only.

#### Article 5

*The interconnection shall be the subject of a private law agreement between the parties in question, in accordance with the relevant provisions of the applicable texts in force. The agreement shall specify the technical and financial conditions pertaining to the interconnection.*

*The interconnection agreement shall make reference to the reference interconnect offer drawn up each year by the operator providing interconnection.*

---

<sup>33</sup> See Annex 1 on Decree No. 2000-087/PRES/PM/MC/MCIA specifying the general conditions for telecommunication network and service interconnection in Burkina Faso.

**Comment C1.4:** This sentence could be interpreted to mean that all operators issue reference interconnect offers once per year, since they are all under the obligation to provide interconnection if so requested by an operator holding a licence to operate a public telecommunication network.

## Article 6

*Public telecommunication network operators ...*

*The technical and tariff conditions for capacity-leasing are set forth in their reference interconnect offer.*

**Comment C1.5:** This presupposes that all operators of public telecommunication networks providing national coverage and/or international links are under the obligation to issue a reference interconnect offer.

## Article 7

*The **incumbent operator** shall be required to satisfy, throughout the transitional period foreseen in Article 18 of this Decree, all requests by public network operators for capacity-leasing on links within its national transmission network, within the limits of their availability.*

**Comment C1.6:** The decree uses the term "incumbent operator", which is a static concept that assumes the incumbent to be the only dominant operator. However, the decree will be applied in a setting where there may be more than one dominant operator. This terminology should therefore be changed.

## Article 10

*Where interconnection with a third party has a seriously negative effect... In such an event, it shall inform the parties in question and specify the conditions for its re-establishment.*

*In the event of a serious and imminent threat... **In the case of unjustified suspension**, it shall specify sanctions to be taken against the offending operator.*

**Comment C1.7:** There is a need to add the stipulation that, outside these conditions, no operator may suspend interconnection wholly or in part without alerting the regulatory authority, which will take whatever decision it deems to be necessary in the circumstances.

## Article 11

*Each point of interconnection shall be selected by the operator requesting interconnection from among the points of connection indicated in the RIO of the operator providing interconnection.*

**Comment C1.8:** The question of POIs closed to interconnection has not been addressed. The RIO should include information about the POIs that are closed to interconnection, why they are closed, and the timeline for their opening. The decree should also be extended to cover the case of competing operators requesting access to such closed exchanges. This would be done through a transition offer, involving a detour through one (or two) higher-echelon exchanges, at the cost of a local interconnection. This measure will provide an incentive for the operator to open such POIs within a reasonable amount of time.

## Article 12

*The reference interconnect offer of public telecommunication network operators must indicate the technical and tariff conditions pertaining to their offer. To this end, they must, for telephone networks, specify as a minimum:*



1        *The services provided*

- a)        *switched telephone traffic routing service ...- international.*
- b)        *capacity-leasing service;*
- c)        *supplementary and advanced services and functionalities... and contractual arrangements;*
- d)        *provision of premises, underground ducting, antenna supports and power sources.*

**Comment C1.9:** The decree appears to be obliging public telecommunication network operators to publish an RIO. The international practice is that only the dominant operator is under such an obligation. Furthermore, since the decree specifies infrastructure sharing, this obligation should cover all operators.

### Article 13

*The reference interconnect offer shall ... be published within one month of such approval.*

*For the subsequent financial periods, the offer shall be submitted to the Regulatory Authority no later than 30 April of the current year. It shall be based on an analysis of the accounting results as at 31 December of the previous financial year. The Regulatory Authority shall have a maximum period of **forty-five (45) calendar days** within which to approve the offer or request amendments thereto.*

**Comment C1.10:** The approval process for the reference interconnect offer can be a lengthy one, depending on the regulator's power to influence negotiations, experience, and workload (number of offers to be approved each year). Imposing a deadline of 45 calendar days could prove to be too short, and difficult to respect in practice, particularly in an environment of completely open competition. It is recommended to allow an additional period of time, in case more is needed.

### Article 14

*An interconnection offer may be modified during the period of validity of a RIO provided that all operators are also able to benefit from the **modification**.*

**Comment C1.11:** In principle, the tariff side of the offer is approved on a cost accounting basis, with audits and audit certificate. This is normally an annual exercise. International practice is that tariffs are determined only once on the basis of those accounts and the forward-looking historical costs. It therefore follows that the modification of the interconnection offer mentioned in this decree can only be technical in nature.

*The Regulatory Authority may ... are not assured.*

*It may likewise decide to add or delete services to or from the RIO in the interests of implementing the principles of orienting interconnection tariffs in line with costs, or of better satisfying the needs of the operator community.*

**Comment C1.12:** Services should be added or removed prior to the final approval of the RIO, in consultation with the market players. Below, we propose guidelines for approving the reference interconnect offer.

### Article 16

*Tariffs for interconnection and capacity-leasing shall be established with due respect for the principle of cost-orientation.*

**Comment C1.13:** The cost-orientation of interconnection tariffs appears to apply to all operators, including the non-dominant ones. Is this regulation in fact intended to be completely symmetric?

## Article 18

*During the transitional period ... charges may not exceed the levels established in its terms of reference.*

*This period will be used ... pursuant to the provisions of the preceding articles.*

*At the end of the period, the Regulatory Authority shall decide:*

- a) either to stipulate new tariff ceilings based on the interconnection cost analysis;*
- b) or, if it considers the incumbent operator's management to be inefficient, to set **tariff ceilings based on the experience of comparable foreign countries**, particularly those neighbouring Burkina Faso.*

**Comment C1.14: As benchmarking is not an exact science, tariffs may not always be cost-oriented. This is permissible only in cases where there no other accounting method is available to verify cost-orientation of the tariffs.**

*The interconnection charges of operators having at least one-third of the national transmission links and/or at least one-third of the international capacity may be subject to capping by the Regulatory Authority if the latter deems those operators to be proposing tariffs that are greatly in excess of their production costs.*

**Comment C1.15: It is not clear what the economic basis is for controlling interconnection charges for operators having at least one-third of the national transmission links and/or at least one-third of the international capacity. The practice of price capping is therefore applicable once operator costs have been fully mastered, and the expected efficiencies achieved, via a fully-distributed cost calculation model followed by one based on long-range incremental costs.**

## CHAPTER V: DISPUTE RESOLUTION

### Article 21

*The Regulatory Authority shall examine any interconnection-related fact or act giving rise to a difficulty, whether on the initiative of a complainant or **on its own initiative**.*

**Comment C1.16: It is good practice to allow the regulator to undertake examinations on its own initiative.**

### Article 23

*The Regulatory Authority shall render its substantiated decision following examination of the complaints, replies and remarks received from the interested parties. Prior to this, it may, as appropriate:*

**Comment C1.17: The decree makes no mention of a statutory deadline for dispute resolution. We recommend that the regulatory inquiry procedure be treated in a separate decree, in a precise and transparent manner.**

## C.2 Mali<sup>34</sup>

### Article 1

1) *For the purposes of this Decree, the following definitions shall apply:*

*Order: Order No. 99-043/P-RM of 30 September 1999 governing telecommunications in the Republic of Mali.*

*Requesting operator: Operator requesting the conclusion of, or having concluded, an interconnection contract for its networks and/or services with a dominant operator.*

*Dominant operator: Operator appearing on the list of operators drawn up under Article 16 of the Order, considered by the Minister as dominant pursuant to that provision.*

**Comment C2.1:** The definition of a dominant operator given here is ambiguous because it is not based on the definition of the relevant market over which the operator is dominant. According to international practice, it is not enough merely to establish a threshold (in the present case, 25 per cent) for the market share. Such a threshold should include a basket of other indices.

### Article 23

1) *CRT shall automatically be responsible for handling any request stemming from the dispute relating to the negotiation, conclusion or execution of an interconnection contract. Referral of the matter to CRT shall be done by registered letter with acknowledgement of receipt, or by direct deposition with acknowledgement of receipt.*

2) *As from the date of referral of the matter, CRT shall have a period of 45 calendar days within which to settle the dispute... .*

**Comment C2.2:** The referral procedure should be specified in a separate decree. Given limited staff resources, a time-limit of 45 calendar days may be inadequate in some cases, particularly if the problems raised are complex, or if there are several disputes to be resolved in parallel.

## C.3 Conclusions drawn from case studies; recommendations

Analysis of the regulatory framework in these two cases leads to the conclusion that it would be advisable to revise the texts so as to create the right conditions for the opening of the markets and the orderly development of competition. *Our analysis of these regulatory frameworks allows us to draw the following general recommendations:*

### Recommendation 1

Equally important tools, such as carrier selection, number portability, co-location and local loop unbundling, should be included in legislation, interconnection regulations, or orders and supplemented by necessary regulatory decisions.

### Recommendation 2

A definition of relevant markets is needed, and a definition of dominant/SMP operators based on international best practice.

---

<sup>34</sup> See Annex 2 on Decree No. 00-230/p-rm of 10 May 2000 on interconnection in the telecommunication sector of the Republic of Mali.

### **Recommendation 3**

The obligations of dominant/SMP operators should be listed in detail, and rules and conditions promulgated for their implementation.

### **Recommendation 4**

Dominant/SMP operators should be obliged to issue an interconnect reference offer every year, use cost-accounting oriented towards the needs of regulation, implement separate accounting, and undergo an annual audit of accounts, in addition to orienting their tariffs towards costs.

### **Recommendation 5**

It is recommended that a time limit should be established for settling disputes relating to interconnection, allowing a margin for the event that the allotted time proves to be inadequate. The referral procedure should be specified in a separate decree. Given limited staff resources, a time-limit of 45 calendar days may be inadequate in some cases, particularly if the problems raised are complex, or if there are several disputes to be resolved in parallel.

This text should allow for inquiries opened on the initiative of the regulator, and for staying measures.

### **Recommendation 6**

The following subjects should be treated: QoS indicators for interconnection services; the obligation to open (PoIs); and the obligation to make a reasonably priced transitional interconnection offer, for exchanges closed to interconnection.

### **Recommendation 7**

We recommend a revision of all the interconnection-related decrees of the West African countries. A special implementation calendar should be established for the regulatory tools, based on the opening to competition, of the fixed network in particular, within each of the countries concerned by this study

### **Overall conclusions**

It has emerged from this study that major efforts in terms of legislation and reform of the regulatory framework will be required in order to properly address the problem of interconnection within the countries that are in UEMOA/ECOWAS. It is our belief that a clear and solid regulatory framework is essential for the orderly development of the telecommunication market in those countries and the liberalization of the fixed-line sector.

We recommend, first and foremost, a complete overhaul and updating of the laws and decrees concerning interconnection. A sound legal basis is the prerequisite for any regulatory advances. This process should take place before the fixed network is liberalized, in the interests of transparency, efficiency and timeliness, with regard not only to investors but also consumers.

To this end, the incumbent should promptly draw up a reference interconnect offer (a reference offer with technical and tariff conditions) in accordance with international best practices. A decision will have to be issued by the regulatory authority to make the offer approval process transparent. This process should allow competing operators to take part in approval-related discussions.

The core of the offer will be the tariffs; accordingly, the regulatory authority will need detailed knowledge of charges and traffic carried by the network of the incumbent operator. It is essential that the charges and the mechanism by which they are channelled into tariff calculations should be

capable of being audited. We believe that this can only be done if the operators in question set up a system of cost-accounting that is oriented towards the needs of regulation.

At the same time, the regulatory authority has an obligation to develop a model for calculating interconnection tariffs, not only for the mobile but also for the fixed network.

The regulatory authorities must issue a clear and transparent referral procedure, so as to inform existing operators and potential competitors about the procedure for settling disputes.

The intervention of the regulatory authority at the level of negotiations for interconnection contracts is essential for new entrants to be able to move into the market within a reasonable time-frame. It should be a priority to develop the expertise needed to deal with interconnection questions.

Prior to liberalizing the fixed sector, consultation should be carried out with the market players and with potential investors concerning the regulatory aspects discussed above. Once this has been done, guidelines should be issued by WATRA on behalf of the regulatory authorities.

They should cover:

- Aspects relating to infrastructure access:
  - access to the point of interconnection (POI)
  - local loop unbundling
  - co-location
  - passive infrastructure sharing
- Aspects relating to competition:
  - selection carrier
  - number portability
  - national and international roaming
- Aspects that are specific to the dominant operators:
  - concept of relevant market and significant market power in a defined relevant market
  - obligations applicable to dominant operators: cost-based prices, adoption of cost accounting for the needs of regulation, separate accounting and accounting audit, publication of reference interconnect offer (RIO)), negotiated interconnection contract
  - expansion of the RIO to foster Internet development
  - dealing with the specific problems of fixed-to-mobile calling
- Aspects that are specific to dispute resolution

In view of the recommendations made above, then, the view of the authors, as already mentioned in the foreword, is that a **suggested** timeline should be established for the implementation of the interconnection guidelines, in preparation for the planned total liberalization of the telecommunication sector in UEMOA/ECOWAS members in 2007, and the full entry of competitors in 2008. This will require coordination between the countries so as to bring forth a definitive timeline for guideline implementation, taking into account the specific constraints and conditions of a social and economic nature within each of the countries.

The suggested timeline is given below.

<b>Action</b>	<b>Start of work</b>	<b>End of work</b>
Revision of regulatory framework for interconnection	Start January 2006	End 2006
Study of relevant markets and dominance	Start January 2006	End 2006
Publication of reference interconnect offer (RIO) for countries that do not yet have one	Start January 2006	Start January 2007*
Transition to cost accounting	Start January 2006	End 2007
Calculation of cost of capital	Start January 2006	End 2006
Call-by-call carrier selection **	Start January 2006	Start January 2007
Co-location**	Start January 2006	Start January 2007
Revision of international roaming between member countries	Start January 2006	End 2006
Cost of terminating fixed-mobile calls	Start January 2007	Start January 2008
Partial unbundling	Start 2008	End 2009***
Complete unbundling	Start 2008	End 2010***
Transition to long-range incremental costs	Start 2008	End 2010
Portability	Start 2010	End 2011
National roaming	Start 2008	End 2009
Expansion of the reference interconnect offer (RIO) for the development of Internet access	Start 2008	End 2009

\* Prior to licensing

\*\* Services to be included in the 2007 RIO

\*\*\* Publication of an unbundling offer

Finally, it may be appropriate, in view of the above programme of work, to remind readers of Adam Smith's observation that all wealth comes from human labour. Resident expertise must be fostered and encouraged, if the institutions are to be sustained and if regulation is to be effective in assisting the orderly development of telecommunication in the countries of the UEMOA/ECOWAS region.

## **ANNEX 1: Guidelines for Interconnection**

### **1 GUIDELINES ON ASPECTS RELATING TO INFRASTRUCTURE ACCESS**

#### **Guidelines 1.1 – Access to the point of interconnection**

The reference interconnect offer (RIO) of the operators must include a list of the subscriber-serving exchanges that have not been opened to interconnection for valid technical or security reasons, along with the expected timeline for opening those subscriber exchanges to interconnection.

However, in some cases the forwarding of the expected operator traffic to and from subscribers connected to one of the listed exchanges may justify the operator being required by the regulator to establish a transitional offer. This transitional offer should allow the requesting operator to take advantage of a fee schedule that reflects the costs which, in the absence of the technical access restrictions, would have been incurred for switching communications to or from, first, the subscribers connected to that exchange, and second, the subscribers who would have been accessible without the need for routing through a higher-echelon exchange.

#### **Guidelines 1.2 – Local loop unbundling**

Giving all new entrants access to the local loop heightens competition and stimulates technical innovation in the local access market, boosting competitive provision of a full range of telecommunication services offered to users, from simple voice telephony to broadband services.

Users can then select from among operators the one which provides the best value for money for the particular service or services desired. However, it should be borne in mind that unbundling taken to excess may in fact inhibit development of the local loop infrastructure, particularly in West Africa, where fixed-line teledensity is among the lowest in the world.

The recommendation is, therefore, that new entrants should be obliged, under their terms of reference, to install some minimum infrastructure capacity; and that the dominant operators should also provide access to copper pairs to the new entrant. The latter can then install its own transmission systems on those pairs, against remuneration. The new entrant should install its transmission equipment at the very end of the local loop, in order to connect these lines to its own network. The operator providing unbundling should also provide for the possibility of co-location on its premises, to facilitate unbundling.

An unbundling offer must be established by the dominant operators, subject to approval by the regulatory authority in the same way as the RIO. The authority should provide a list of the services to be included in the RIO.

The regulator must ensure that the new entrant is provided with the information needed for unbundling purposes (address and coverage of splitters, space required for co-location, quality of lines, lead-time for providing unbundled lines).

We recommend that the "scissor test" be used to compare retail prices and unbundling prices and eliminate any anti-competitive practices by the dominant operators..

We recommend that the regulatory authorities ensure that, to the greatest extent possible, unbundling-relevant information between dominant operators and competitors be exchanged rapidly and in an automated electronic form.

In preparation for the liberalization of fixed communications, a schedule must be set up for unbundling. It is better to begin unbundling with shared line access, and advance to full access at a later stage. Bitstream access, which does not require co-location, may be an attractive option for

ISPs because it allows them to offer high-speed services. In addition, the automatic exchanges need to be prepared so as to support the offering of co-location.

### **Guidelines 1.3 – Co-location**

There should be an obligation for dominant operators to provide co-location. A co-location offer should be included in the RIO for network interconnection and the unbundling offer for unbundling. The technical and financial conditions of the offer should not create barriers to new entrants. In the case of interconnection without the possibility of co-location, new entrants will continue to depend on the dominant operators for the provision of the interconnection links. This may be a serious handicap in that the cost of the interconnection links (2 Mbit/s links) may be prohibitive, and the technical conditions imposed through the interconnection contract may be unfavourable for the competitor operator (fixed or mobile).

Where physical co-location is not feasible, for some valid reason (e.g. lack of space), an alternative co-location offer must be prepared by the dominant operators (e.g. in-span or virtual).

We recommend that the regulatory authority should have a map of self-contained routing switches that are open to interconnection and are available for competitors' co-location. To this end, a working group composed of the regulatory authority, the dominant operators and other operators (competitors) should, in a transparent fashion, examine the problems of co-location and reflect on different solutions in order to solve problems that might arise. The industry could be involved in the work of this group so as to bring its technical expertise to bear.

We recommend that the regulatory authority encourage the use of the co-mingling option, which has a short lead-time and is considerably less expensive than solutions involving physical co-location.

We recommend that the regulatory authority should work in advance on problems relating to access to premises, uninterrupted power, cooling and patch cables.

We recommend that the regulatory authority stifle any attempts to create entry barriers inherent to co-location, and that it resolve conflicts relating to it as rapidly as possible, in view of the fact that delays in the provision of this service mean delays in unbundling and in the possibility for the competing operator to provide its own interconnection links.

In this regard, we recommend that the regulatory authority establish a decision on the minimal set of conditions that must be fulfilled in any co-location offer, following consultation with the operators of public telecommunication networks. These conditions may lead to the specification, in every co-location offer, of the following:

- information on co-location sites:
- precise location of the operator's sites suitable for co-location;
- publication or notification of an updated list of sites;
- indication as to the availability of alternative solutions in the event that physical space for co-location is not available;
- information on what types of co-location are available, and on the availability of electric systems and cooling equipment on the sites, as well as the rules governing sub-leases for the co-location premises;
- indications on the time required to conduct feasibility studies for any co-location request;
- information on equipment characteristics and any restrictions on equipment that can be accepted for co-location;



- measures that operators offering co-location must take to ensure the security of their premises and to identify and resolve problems;
- conditions under which competing operator personnel may enter the premises;
- conditions under which competing operators and the regulator may inspect a site where there is physical co-location, and those where co-location has been refused on the grounds of lack of capacity.

## **Guidelines 1.4 – Passive infrastructure sharing**

### **Recommendations**

To foster and entrench competition as rapidly as possible, we recommend that the regulatory authorities impose infrastructure sharing.

The authorities should ensure that sharing between the operators of public telecommunication networks takes place under conditions of fairness, non-discrimination and equality of access.

Thus, the regulatory authority, in consultation with the other players, is encouraged to elaborate a procedure for handling relations between the operators of public telecommunication networks in the matter of the conditions and the sharing of infrastructure, in particular lead-times and access to the information needed to put it into place.

We recommend that, following European and other international best practices<sup>17</sup>, the dominant operators and other operators make provision for posts, ducts and elevated points to be made available mutually on a commercial basis, in particular where there is limited access to such resources (natural or structural obstacles).

The revision of the telecommunication laws of the countries of West Africa must include a clause on the obligation of infrastructure sharing.

### **Recommendations**

To foster and entrench competition as rapidly as possible, we recommend that the regulatory authorities encourage access to alternative infrastructure on the basis of commercial negotiations.

The authorities should ensure that such access is shared under conditions of fairness, non-discrimination and equality of access.

The revision of the telecommunication laws of the countries of West Africa must include a clause on access to alternative infrastructure.

The status of companies providing access to alternative infrastructure must be changed to include this service.

## **2 GUIDELINES ON ASPECTS RELATING TO COMPETITION**

### **Guidelines 2.1 – Carrier selection**

We consider that one of the prerequisites for developing competition in a liberalized market is that consumers should be able to freely choose their operator, and have access to the services of an alternative operator. Carrier selection as explained above is one mechanism for achieving this.

---

<sup>17</sup> Reference is made to international best practices that should be adapted to the sub-regional context.

For greater user convenience and effective competition, we recommend introducing carrier selection in the call-by-call form, as a minimum, from the very beginning of competition. We recommend that this obligation to offer selection should apply to all dominant/SMP operators.

We recommend inviting dominant/SMP operators to undertake the technical changes that are necessary to adapt its automatic exchanges so as to be able to offer call-by-call selection in the initial phase. Furthermore, this service should be included in the reference interconnect offer.

We recommend that the regulatory authority be authorized to assign prefixes to operators which fall within the category of carriers.

We recommend that the regulator be further authorized to take decisions on:

- type of carrier selection
- operators eligible to act as carriers
- operators subject to the obligation to offer carrier selection
- types of calls carried
- problems involved in carrier selection (e.g. invoicing, calling line identification)
- unfair competitive practices such as slamming

Pre-selection should be put in place once all the required technical changes have been made.

### **Guidelines 2.2 – Number portability**

In view of the fact that competition in West Africa is largely restricted to the mobile sector, portability affects only mobile networks. It is of interest primarily to professional subscribers. Since, in most of the member countries, most subscribers use prepaid services, we do not consider that portability is a priority for those countries today. This observation is further supported by the fact that it would require major capital expenditure and large technical and processing capacity in the exchanges, with an intelligent network to ensure a good quality of service including the option of premium services. The impact of the technology is important in particular for portability between fixed mobile network, and portability within the mobile network.

Nonetheless, we recommend that regulatory authorities conduct market studies to assess consumers' portability needs and identify what categories of consumers are likely to request such a service (residential, professionals, etc.) and for which types of services.

Where a need has been clearly identified, it is both appropriate and legitimate for users to be given the option of exercising a free choice as to the public network carrier and services to which they wish to subscribe. To this end they should be able to keep their telephone number when they change operators, using the mechanism of number portability.

For these reasons we recommend a consultation between the market players and the regulatory authority, given that portability is relatively difficult to put into practice, particularly its technical and tariff aspects, and consultation is necessary.

We recommend furthermore that the numbering plan be revised so as to adapt it to the requirements of number portability.

### **Guidelines 2.3 – National roaming**

As part of market liberalization in the countries of West Africa, we recommend that new entrants be given the possibility of offering their services throughout the territory currently covered by the existing operators, by means of national roaming. This will make possible the following:

- avoidance of duplication of infrastructure in areas that already have coverage which is particularly important in the case of third-generation operators;

- voice and data being made available across the entire national territory as rapidly as possible, for low-speed, medium-speed and high-speed (e.g., 3G) networks alike.

We therefore recommend that the regulatory authority arrange for existing operators to be put under an obligation to offer national roaming to requesting operators, at an affordable price, wherever it is technically possible to do so.

However, national roaming must in no event replace the coverage obligations undertaken in the framework of mobile service licensing by new entrants. Sunset clauses should be included in new entrant's licenses in order to avoid market entry by operators lacking a concrete telecommunication network deployment plan.

We recommend that operators be obliged to provide consumers with relevant information about national roaming tariffs.

This service is negotiated between the operators on a bilateral basis in the form of a national roaming contract. The regulatory authority should monitor national roaming offers for fairness and non-discrimination.

To this end, we recommend that the regulatory authority publish specific national roaming guidelines to help establish tariff and technical conditions and provide information on national roaming contracts, in consultation with the market players.

#### **Guidelines 2.4 – International roaming**

Following European practice, we recommend that the regulatory authorities of the West African countries, through the West African Telecommunications Regulators Assembly (WATRA), take the following measures:

- ensure the widest possible compatibility between mobile systems in terms of roaming, and take it into consideration when awarding mobile licences in the region;
- study roaming prices charged in the region;
- consult with the other players, with a view to arriving at reasonable tariffs to allow the greatest possible number of roaming users in the region to utilize those networks under the best price and quality conditions;
- identify operators engaging in applying prohibitive prices;
- consult with the national competition authority, where one exists;
- allow prepaid subscribers to use roaming (technical implementation) at reasonable tariffs;
- inform customers about the roaming charges in a clear and transparent manner;
- draw the necessary conclusion from the decision of the European Commission on the international roaming market and the definition of a dominant position in that market (to be published end-May 2005).

### **3 GUIDELINES ON ASPECTS THAT ARE SPECIFIC TO DOMINANT AND SIGNIFICANT MARKET POWER (SMP) OPERATORS**

#### **Guidelines 3.1 – concept of relevant market and significant market power on a relevant market<sup>18</sup>**

##### ***Recommendations for each regulatory authority in ECOWAS/UEMOA countries***

Following the practice in Europe, we recommend that the regulatory authorities in West African countries:

- determine the relevant markets;
- collect information about each identified market so as to measure the extent of dominance;
- consult with the concerned players on the telecommunication market for the purpose of analysing those markets;
- seek the advice of the competition authority, where one exists;
- consult with the concerned players on the telecommunication market about obligations to be imposed on dominant/SMP operators (remedies such as the obligation to use cost-oriented tariffs) for each relevant market.

##### **Recommendations**

Following the practice in Europe, we recommend that a UEMOA/ECOWAS commission (corresponding to the European one) produce:

- directives adapted to the individual cases of the countries in question (like the European directives);
- guidelines for market analysis and assessment of market power;
- a recommendation on relevant markets in products and services in the telecommunication sector that can be regulated *ex ante*.

The authority should analyse the market in order to determine whether it is competitive or not and then draw the necessary consequences about regulatory obligations: if the analysis shows the market to be competitive, then any existing obligations can be abolished, otherwise the body must identify the dominant/SMP operators and impose appropriate regulatory obligations.

#### **Guidelines 3.2 – Obligations that may be applied to dominant/SMP operators**

##### **Guidelines 3.2.1 – Obligation to set up cost accounting suitable for regulatory purposes**

The regulatory authorities in the member countries must urge the dominant/SMP operators to set up cost accounting for the purposes of regulation.

The establishment of the new accounting must begin in 2005 and be completed by 2008 at the latest, in order to adequately prepare for the opening of the market for fixed communication.

Cost accounting must show separate accounts, in accordance with international best practices.

---

<sup>18</sup> According to Article 14 of the Directive (2002/21/EC) on a Common Regulatory Framework of the European Commission: An undertaking shall be deemed to have significant market power if, either individually or jointly with others, it enjoys a position equivalent to dominance, that is to say a position of economic strength affording it the power to behave to an appreciable extent independently of competitors, customers and ultimately consumers.  
[http://europa.eu.int/information\\_society/topics/telecoms/regulatory/new\\_rf/documents/l\\_10820020424en00330050.pdf](http://europa.eu.int/information_society/topics/telecoms/regulatory/new_rf/documents/l_10820020424en00330050.pdf)

It is further recommended that costs relating to regulated and non-regulated activities be kept separate.

Accounting must be by activity (activity-based costing).

The cost accounting system of the dominant/SMP operators must be audited annually by an independent body, the costs of the audit to be incurred by the dominant/SMP operators.

It must allow the regulatory authority to set up a cost nomenclature prior to submission of the RIO for approval.

### **Guidelines 3.2.2 – Calculation of interconnection rates**

#### **The calculation of the cost of capital for emerging countries in general and the ECOWAS/UEMOA countries in particular**

Pending the implementation of cost accounting by 2008, we recommend that interconnection rates be calculated as follows:

- using a regional benchmark, where available, to set the range of values within which interconnection rates must fall;
- using an existing calculation tool such as COSITU and, to the extent possible, trying to feed in existing and auditable data, or alternatively representative benchmark inputs.

In particular, the calculation of termination rates on a network must take account of the retail tariffs applied for calls terminating on the network.

For Member States which have audited cost accounting, international practice suggests that a top-down model based on forward-looking historical costs may be used initially (e.g., for three years) before moving to a model based on long run incremental costs (LRIC), thereby giving the dominant operators an incentive for greater efficiency.

We recommend that, for setting the appropriate rate of return based on the cost of capital, market data be used. This is the most theoretically sound method and the one most commonly accepted internationally, by both regulatory bodies and telecommunication companies.

For calculating the cost of equity, given that in the ECOWAS/UEMOA countries the telecommunication market is not very highly developed, sufficient historical data are lacking and operators are not quoted on the stock market, we recommend using the hybrid capital asset pricing model (CAPM), incorporating the country risk and a correction coefficient R.

We recommend recourse to external expertise for calculating the cost of capital.

### **Guidelines 3.2.3 – Publication of reference interconnect offer**

The regulatory authorities should publish a clear and transparent procedure governing approval of the RIO (timetable, submission of the RIO to competitors for comment, etc.).

Regulatory authorities are entitled to request the dominant/SMP operators to add to or modify the services set out in their offers, when such additions or modifications are justified for compliance with the principles of non-discrimination and cost-orientation of interconnection.

We recommend that offers be as detailed as possible in order to facilitate and smooth interconnection contract negotiations.

As competition unfolds, and in particular as fixed network services are opened up to competition by 2007, RIOs must include, in addition to the minimum services listed above, the following services:

- third-party billing services;

- at the request of the regulatory authority, an alternative co-location offer if physical co-location is proven to be technically unfeasible;
- as needed, the technical and financial conditions governing access to the operator's resources, in particular those relating to unbundling of the local loop, with a view to offering advanced telecommunication services.

#### **Guidelines 3.2.4 – Negotiation of the interconnection contract**

Although interconnection contracts are of course freely negotiated by the operators concerned, the regulatory authorities of the Member States must exercise oversight over the agreements signed. We therefore recommend that the authorities be entitled, if necessary, to revise interconnection contracts in order to guarantee interoperability of services and fair competition, and to impose this as an obligation on the contracting parties within set time-frames.

A maximum contract negotiation time frame should be set by the regulatory authorities, after which they must intervene to bring the negotiations to a conclusion, so that negotiations do not become a barrier to the entry of new operators.

We recommend that operators which so request be allowed to consult, in the offices of the regulatory authorities, in the manner that the latter shall decide and respecting normal business confidentiality, the interconnection contracts concluded by operators.

#### **Guidelines 3.3 – Expansion of the reference interconnect offer to promote development of the Internet**

We believe that Internet cannot become widespread without liberalization of fixed services and the introduction of alternative operators.

As soon as fixed services are liberalized, alternative operators must have access to unbundling, in particular the bit stream option. Line sharing is indispensable with a view to expanding the offer of high-speed services to a mass market. It would also give the user a genuine choice among alternative high-speed service offerings for fast Internet access, for which line sharing is well suited.

We recommend that, through unbundling, alternative operators should be able to amortize their investments by offering "triple play" type services (high-speed Internet + voice + television).

We recommend that all the alternative operators' equipment necessary for the implementation of local loop access (DSLAM, related monitoring/management equipment, power supply, converters, batteries, routers and BAS) should be able to be co-located.

We recommend that the regulatory authority authorize the offering of bitstream-type services, which will promote development of the wholesale market and hence rapid expansion of Internet in the member countries.

We recommend that, prior to the liberalization of fixed services scheduled for 2007, the regulatory authorities negotiate with the dominant operators on the inclusion of standard offers, namely: flat-rate access, access via non-geographical freephone numbers, access via non-geographical paying numbers.

#### **Guidelines 3.4 – Specific problem of fixed-to-mobile calls**

We recommend that the ECOWAS/UEMOA regulatory authorities examine:

- interconnection and call termination charges on mobile networks and fixed networks;
- the difference in charges and tariff structures between retail prices and interconnection and the sharing of revenues between originating and terminating operators for fixed-to-mobile calls;

- possible adjustments to the tariff structures of retail and interconnection prices.

We recommend that the ECOWAS/UEMOA regulatory authorities evaluate:

- the relevance of the interconnection market
- the relevance of the mobile termination market
- the identification of dominant/SMP operators in these markets and implementation of the necessary corrective action to promote smooth development of the telecommunication market and the process of liberalization of the fixed network in particular.

#### **4 GUIDELINES ON ASPECTS SPECIFIC TO THE SETTLEMENT OF DISPUTES**

We recommend that the ECOWAS/UEMOA regulatory authorities:

- publish a referral procedure enabling players in the market to bring disputes before the regulatory authority in accordance with a clear and transparent procedure;
- ensure that the committee responsible for taking decisions is impartial, and comprises people recognized for their competence and appointed *intuiti personae*;
- set a maximum time-frame for the settlement of disputes;
- provide for the possibility of the authority initiating an action itself, and the possibility of injunction against an operator in the event of serious problems requiring urgent solution;
- cooperate as widely as possible, through WATRA, and establish a group for exchanging experience via the Internet and a database of past disputes and their solutions (e.g. tariff benchmark data).

#### **SUMMARY OF GUIDELINES 1 – 4 ON THE EXISTING REGULATORY FRAMEWORK FOR INTERCONNECTION**

##### **Recommendation 1**

Equally important tools, such as carrier selection, number portability, co-location and local loop unbundling, should be included in legislation, interconnection regulations, or orders and supplemented by necessary regulatory decisions.

##### **Recommendation 2**

A definition of relevant markets is needed, and a definition of dominant/SMP operators based on international best practice.

##### **Recommendation 3**

The obligations of dominant/SMP operators should be listed in detail, and rules and conditions promulgated for their implementation.

##### **Recommendation 4**

Dominant/SMP operators should be obliged to issue an interconnect reference offer every year, use cost-accounting oriented towards the needs of regulation, implement separate accounting, and undergo an annual audit of accounts, in addition to orienting their tariffs towards costs.

##### **Recommendation 5**

It is recommended that a time limit should be established for settling disputes relating to interconnection, allowing a margin for the event that the allotted time proves to be inadequate. The referral procedure should be specified in a separate decree. Given limited staff resources, a time-

limit of 45 calendar days may be inadequate in some cases, particularly if the problems raised are complex, or if there are several disputes to be resolved in parallel.

This text should allow for inquiries opened on the initiative of the regulator, and for staying measures.

#### **Recommendation 6**

The following subjects should be treated: QoS indicators for interconnection services; the obligation to open (PoIs); and the obligation to make a reasonably priced transitional interconnection offer, for exchanges closed to interconnection.

#### **Recommendation 7**

We recommend a revision of all the interconnection-related decrees of the West African countries. A special implementation calendar should be established for the regulatory tools, based on the opening to competition, of the fixed network in particular, within each of the countries concerned by this study.



## **ANNEX 2**

### **DECREE No. 2000-087/PRES/PM/MC/MCIA SPECIFYING THE GENERAL CONDITIONS FOR TELECOMMUNICATION NETWORK AND SERVICE INTERCONNECTION**

#### **BURKINA FASO**

**(UNOFFICIAL TRANSLATION)**

**BURKINA FASO**

-----  
**Unity – Progress – Justice**  
-----

**DECREE No. 2000-087/PRES/PM/MC/MCIA**

**specifying the general conditions  
for telecommunication network  
and service interconnection**

**THE PRESIDENT OF BURKINA FASO,  
PRESIDENT OF THE COUNCIL OF MINISTERS,**

**In view of** the Constitution;

**In view of** Decree No. 99-003/PRES of 11 January 1999, appointing the Prime Minister;

**In view of** Decree No. 99-358/PRES/PM of 12 October 1999, reorganizing the Government of Burkina Faso;

**In view of** Decree No. 97-468/PRES/PM of 31 October 1997, assigning functions to the members of the Government;

**In view of** Act No. 051/98/AN of 4 December 1998, reforming the telecommunication sector in Burkina Faso;

**In view of** Act No. 058/98/AN of 16 December 1998, authorizing the partial privatization of ONATEL;

**In view of** Act No. 15/94/ADP of 5 May 1994, organizing competition in Burkina Faso;

**In view of** Decree No. 96-62/PRES/PM/MCIA of 14 March 1996, establishing the arrangements for application of Act No. 15/94/ADP of 5 May 1994 organizing competition in Burkina Faso;

**In view of** Decree No. 99-419/PRES/MCC of 15 November 1999, approving the Statutes of the *Autorité Nationale de Régulation des Télécommunications*;

**On report of** the Ministry of Communication;

**The Council of Ministers**, meeting on 1 March 2000,

**HEREBY DECREES**

**SECTION I: GENERAL PRINCIPLES**

**Article 1**

For the purposes of this Decree, the following definitions shall apply:

a) **Dominant operator**: any operator, as defined in Article 5 (14) of Act No. 051/98/AN of 4 December 1998 on reform of the telecommunication sector, whose market share (percentage revenue of that operator as compared to the revenues of all operators) for a given service or set of compatible services is at least one-third;

b) **Incumbent operator**: the operator, currently known as ONATEL, that was formerly responsible for implementing, on behalf of the State, public telecommunication networks and services within the monopolistic legal and regulatory framework in force prior to the promulgation of Act No. 051/98/AN of 4 December 1998 on reform of the telecommunication sector in Burkina Faso;

- c) **Point of interconnection:** location in which a network operator sets up the interface equipment enabling interconnection with other network operators;
- d) **Interconnection link:** the transmission link (wired, radio or other) between the network of a given operator and the point of interconnection of an interconnection provider;
- e) **Compatible services or networks:** services or networks presenting enough similarities to enable their interconnection. For example, the telephone service (network) is compatible with other services (fax, data transmission over a switched network, etc.), but not with the telex service (network).

## **Article 2**

The present Decree, adopted in application of Article 20 of Act No. 051/98/AN of 4 December 1998 on reform of the telecommunication sector, sets forth the general conditions for telecommunication network and service interconnection.

The interconnection of telecommunication networks serves to:

- a) bring all networks and services within a national network of Burkina Faso;
- b) ensure the technical efficiency of this national network under the best possible economic conditions;
- c) favour the emergence of services using the existing network infrastructures.

## **Article 3**

Each public telecommunication network operator is required to interconnect its network with those of network operators providing compatible services. To that end, any operator receiving authorization to establish a public network or service is required to interconnect with at least one other operator, if any, providing a compatible service, provided that the network of that operator is interconnected to that of other operators of compatible services.

Only the dominant operators are obliged to respond favourably to requests for interconnection from other operators of compatible services.

## **Article 4**

An operator wishing to establish an interconnection shall submit its request in writing to the operator in question. The latter shall reply within a period not exceeding thirty (30) calendar days, proposing the technical and financial arrangements for interconnection, in accordance with the applicable texts in force. The request shall specify the characteristics of the required interconnection, in particular the points of interconnection, link capacities and proposed signalling standards.

If, for whatever reason, interconnection is refused, the requesting party may appeal to the Regulatory Authority. Where the refusal to interconnect is deemed to be unjustified, the Regulatory Authority shall render a substantiated decision within a period of thirty (30) days as from the date on which the case was brought before it by the party requesting interconnection, after having invited the two parties to present their remarks, in accordance with Article 23 of Act No. 051/98/AN of 4 December 1998 on reform of the telecommunication sector. The Regulatory Authority's decision shall specify the equitable conditions, both technical and financial, under which the interconnection is to be effected.

Any disputes are to be brought before the competent jurisdictions. Any appeal against the Regulatory Authority's decision shall not be suspensive.

## **Article 5**

The interconnection shall be the subject of a private law agreement between the parties in question, in accordance with the relevant provisions of the applicable texts in force. The agreement shall specify the technical and financial conditions pertaining to the interconnection.

The interconnection agreement shall make reference to the reference interconnect offer drawn up each year by the operator providing interconnection. This document, which is public, shall be published following approval by the Regulatory Authority in accordance with Article 20 of Act No. 51/98/AN of 4 December 1998 on reform of the telecommunication sector and with the provisions of this Decree.

The agreement shall be communicated to the Regulatory Authority within seven (7) calendar days of the date of its signature by the parties. The Regulatory Authority shall have a period of six (6) months as from the date of receipt of the agreement to request the parties to make amendments thereto if it deems that the applicable texts, or its decisions taken pursuant to those texts, have not been complied with and/or that fair competition and the interoperability of services are not assured. Any such request shall be substantiated. The authority shall call for modifications, in particular, in the following cases:

- a) failure to abide by the rules laid down by the Regulatory Authority or by the competent standardization bodies;
- b) failure to abide by an operator's terms and conditions;
- c) failure to abide by the principle of equality of treatment among operators. To this end, the Authority shall make a comparison between the agreements in force and the new agreements submitted for its approval. In the event of unequal treatment, the Regulatory Authority may require that the new agreement or the agreements in force be modified such that the more favourable provisions are applied to all operators finding themselves in a similar position.

Where the Regulatory Authority considers it necessary to modify an interconnection agreement, it shall communicate its substantiated request to the operators concerned, which shall have a period of one (1) month in which to amend the agreement and submit the new version thereof to the Regulatory Authority.

## **Article 6**

Public telecommunication network operators providing national coverage and/or international links are required to offer a capacity-leasing service to public telecommunication network operators.

The technical and tariff conditions for capacity-leasing are set forth in their reference interconnect offer.

## **Article 7**

The incumbent operator shall be required to satisfy, throughout the transitional period foreseen in Article 18 of this Decree, all requests by public network operators for capacity-leasing on links within its national transmission network, within the limits of their availability. Its terms of reference shall specify the deadlines for setting up the necessary infrastructures pursuant to this obligation and the transitional arrangements applicable during the intervening period.

## CHAPTER I: TECHNICAL ARRANGEMENTS

### Article 8

Operators shall take all necessary measures to ensure compliance with the essential requirements, and in particular:

- a) security in the establishment of networks;
- b) maintenance of network integrity;
- c) service interoperability;
- d) protection of data, including personal data, privacy and confidentiality of information processed, transmitted and stored.

The arrangements made to ensure continued access to telecommunication networks and services in the event of network failure or *force majeure* are specified in the interconnection agreements. If the Regulatory Authority deems those arrangements to be inadequate, it may request the operators to modify the terms of those agreements.

### Article 9

The Regulatory Authority shall draw up and publish the technical standards and specifications to which the operators must adhere in order to:

- a) ensure compliance with the essential requirements;
- b) enable interfacing between the different networks.

Where they exist, the authority shall always choose the standards and specifications recommended by international telecommunication standardization bodies, particularly the International Telecommunication Union.

The Regulatory Authority shall foster the emergence of standards and specifications that are shared with Burkina Faso's neighbours, with a view to facilitating regional network integration.

In the absence of a decision by the Regulatory Authority by the date on which the interconnection is to be negotiated between two operators, the parties shall be free to determine the specifications for the interfaces between their networks, subject to the adoption of standards that are recommended by the International Telecommunication Union.

### Article 10

Where interconnection with a third party has a seriously negative effect on the proper functioning of an operator's network, or on compliance with the essential requirements, the operator, following technical verification of its network, shall bring the situation to the attention of the Regulatory Authority. The latter may then, if necessary, authorize the suspension of the interconnection. In such an event, it shall inform the parties in question and specify the conditions for its re-establishment.

In the event of a serious and imminent threat to the functioning of its network, an operator may interrupt the interconnection traffic, under its own responsibility, whereupon it shall immediately take the necessary measures to inform users. The Regulatory Authority must, within twenty-four (24) hours, be informed of the cause of the interruption and the nature of the threat having rendered it necessary. It shall then, within the next two working days, issue a substantiated decision as to whether or not the suspension was necessary. In the case of unjustified suspension, it shall specify sanctions to be taken against the offending operator.

## **Article 11**

Each point of interconnection shall be selected by the operator requesting interconnection from among the points of connection indicated in the RIO of the operator providing interconnection.

The establishment of the interconnection link shall, unless the two parties decide otherwise, be at the expense of the operator requesting interconnection. This link shall remain the responsibility of the operator having established it.

The technical specifications of the modulation, multiplexing and signalling systems are defined for each point of interconnection by the reference interconnect offer, in compliance with the standards laid down by the Regulatory Authority.

In the event of disagreement between the parties regarding establishment of the interfaces, the matter shall be brought before the Regulatory Authority, which shall make known its decision within thirty (30) calendar days as from the date on which the matter was referred to it by the complainant. To that end, it shall request the other party to present its case.

Prior to the actual bringing into service of the interconnection, the interfaces shall be subjected to tests which shall be jointly defined and conducted on site by the two operators in question. In the event that the interconnection tests are not carried out under normal conditions and/or within the normal time-frame, one or other of the parties may bring the matter before the Regulatory Authority.

Where two operators agree on a point of interconnection or on technical specifications not indicated in the RIO, the operator providing the interconnection is required to publish an addendum to its RIO indicating the new point of interconnection or new specifications. In such a case, it must accede to any requests submitted by operators having established an interconnection with its network for modification of their interconnection.

## **CHAPTER II: REFERENCE INTERCONNECT OFFER (RIO)**

### **Article 12**

The reference interconnect offer (RIO) of public telecommunication network operators must indicate the technical and tariff conditions pertaining to their offer. To this end, they must, for telephone networks, specify as a minimum:

#### **1 The services provided**

a) switched telephone traffic routing service, including data transiting over the switched telephone network providing technical access and tariff options allowing for breakdown of the offer into:

- local service,
- long-distance service,
- international service;

b) capacity-leasing service;

c) supplementary and advanced services and functionalities (including access to the intelligent network resources necessary to ensure optimum traffic interconnection and routing) and contractual arrangements;

d) provision of premises, underground ducting, antenna supports and power sources.

## **2 The technical conditions**

- a) description of all points of interconnection and the conditions in regard to physical access thereto;
- b) full description of the interconnection interfaces proposed in the RIO, particularly the signalling protocol used at the interfaces and conditions for bringing into use.

## **3 Tariffs and costs**

- a) tariffs for the establishment and use of the interconnection, including tariffs in regard to the provision of sites and power sources for equipment located under the control of the interconnection provider;
- b) arrangements for determination of the variable costs associated with establishment of the interconnection (e.g. specific adaptations).

## **Article 13**

The reference interconnect offer shall, within six (6) months following the granting of the concession or authorization, be submitted to the Regulatory Authority for its approval, and shall be published within one month of such approval.

For the subsequent financial periods, the RIO shall be submitted to the Regulatory Authority no later than 30 April of the current year. It shall be based on an analysis of the accounting results as at 31 December of the previous financial year. The Regulatory Authority shall have a maximum period of forty-five (45) calendar days within which to approve the RIO or request amendments thereto. The RIO shall be published by 30 June of each year and shall be valid from 1 July to 30 June of the following year.

Publication of the RIO shall be announced by means of a communiqué in the *Journal officiel* and at least one national daily newspaper. The announcement shall specify the place from which the RIO may be obtained and the amount to be paid to cover publication costs.

In addition, the operator shall publish the information on a website based in Burkina Faso. The Regulatory Authority may ensure that the site in question can be easily accessed by any interested party.

Failing publication by the operator under the above-mentioned conditions, the Regulatory Authority shall, at the providing operator's expense, arrange for publication of the RIO in a nationally-available journal.

Any interconnection conditions not specified in the operator's RIO must be flagged as such in the interconnection agreement.

## **Article 14**

An interconnection offer may be modified during the period of validity of a RIO provided that all operators are also able to benefit from the modification.

The Regulatory Authority may at any time call for modification of the reference interconnect offer where it considers that the conditions for telecommunication network and service competition and interoperability are not assured.

It may likewise decide to add or delete services to or from the RIO in the interests of implementing the principles of orienting interconnection tariffs in line with costs, or of better satisfying the needs of the operator community.

## CHAPTER III: INTERCONNECTION AGREEMENTS

### Article 15

Interconnection agreements shall specify, as a minimum:

- **General principles**
  - the commercial and financial relations, and particularly the invoicing and collection procedures, as well as payment conditions;
  - the transfers of essential data between the two operators and the frequency thereof or corresponding periods of notice;
  - the procedures to be applied in the event that one of the parties proposes a change in the interconnection offer;
  - definitions and limitations in regard to liability;
  - any intellectual property rights;
  - the time-frame and conditions for negotiation of the agreement.
- **At the operational level**
  - coordination in regard to keeping the network fully and properly functioning;
  - coordination in regard to network development;
  - coordination in regard to dimensioning of the interconnection;
  - coordination in regard to invoicing;
  - coordination in regard to network management operations;
  - coordination in regard to network fault analysis;
  - coordination in regard to quality of service;
  - coordination in regard to enquiries support services.
- **At the contractual level**
  - establishment of the interconnection;
  - system conformity;
  - operational security;
  - bringing into use of the interconnection service;
  - minimum assured quality of service between one subscriber and another;
  - confidentiality;
  - general provisions;
  - provisions in regard to problem-solving.
- **Description of interconnection services provided and corresponding remuneration**
  - conditions for access to the basic service, switched traffic and, for public network operators, leased links;
  - connections giving access to supplementary services;
  - invoicing services on behalf of third parties;
  - conditions for the sharing of installations relating to the physical connection of networks.



- **Technical characteristics of interconnection services**
  - measures taken to ensure that users have equal access to the various networks and services;
  - measures aimed at ensuring compliance with the essential requirements;
  - full description of the interconnection interface;
  - charging data supplied at the interconnection interface;
  - quality of services provided: availability, security, efficiency, synchronization;
  - traffic routing arrangements.
- **Arrangements for bringing the interconnection into use**
  - conditions for bringing into use of services, arrangements for traffic forecasting and installation of interconnection interfaces, procedure for identifying leased-link extremities, availability lead times;
  - designation of points of interconnection and description of physical arrangements for interconnection thereto;
  - arrangements for reciprocal dimensioning of the interface equipment and shared elements in each network in the interests of maintaining the quality of service foreseen in the interconnection agreement and ensuring compliance with the essential requirements;
  - arrangements for testing of interface functioning and service interoperability;
  - procedures for intervention and fault clearance.

The Regulatory Authority shall ensure that operators comply with the applicable texts. It shall also ensure that all operators are treated equally, to which end it shall compare the provisions of the agreements submitted for its approval with those of the agreements in force. In the event that it considers a given provision to be more favourable to a given operator, it may call either for the application of identical or equivalent provisions to the other interconnected operators, or for the agreement in question to be brought into line with the others.

The Regulatory Authority shall have a period of six (6) months within which to formulate its substantiated remarks or notify its approval. Where it makes remarks, the two operators shall have a period of one (1) month within which to amend the agreement and resubmit it to the Regulatory Authority.

## **CHAPTER IV: INTERCONNECTION TARIFFS**

### **Article 16**

Tariffs for interconnection and capacity-leasing shall be established with due respect for the principle of cost-orientation.

To this end, operators shall, before the end of the transitional period referred to in Article 18 below, implement a cost-accounting framework that enables them to identify the following different types of cost:

- a) general network costs, i.e. costs relating to the network elements used by the operator both for providing services to its own users and for interconnection or capacity-leasing services;
- b) costs specific to interconnection services, i.e. costs directly incurred solely by interconnection or capacity-leasing services;

- c) costs specific to an operator's services other than interconnection, i.e. costs incurred solely by such services. Costs specific to interconnection services shall be entirely allocated to interconnection services.

Costs specific to a operator's services other than interconnection shall be excluded from the basket of interconnection service costs. Such exclusion applies to, among others, access (local-loop) costs and commercial costs, publicity, marketing, sales, sales administration other than interconnection, billing and collection other than interconnection.

The costs allocated to interconnection must, moreover, respect the following principles:

- a) the costs in question must be relevant, i.e. they must have a direct or indirect causal link with the interconnection service provided;
- b) the costs in question must be conducive to an increase in economic efficiency over the long term, i.e. they must take account of network renewal investment based on the best available technologies and optimum network dimensioning, with a view to maintaining the desired quality of service.

Interconnection costs shall be reviewed annually by operators on the basis of the accounts for the previous financial period. The results of the review shall be communicated to the Regulatory Authority in support of the reference interconnect offer.

The Regulatory Authority shall establish, as necessary, the detailed accounting and modelling rules to be applied by operators, in the interests of ensuring consistency among the methods used and the economic validity of the results. To that end, operators shall be involved in the drawing-up of those rules.

## **Article 17**

The tariff-setting side shall comprise two components:

- a) a fixed part depending on the capacity implemented;
- b) a variable part depending on the traffic carried.

The fixed part shall correspond to the set up and/or connection charges, as well as operational and maintenance charges that are independent from traffic. It shall be collected in the form of periodic payments.

The variable part shall differ according to whether the traffic is local, national or international, or routed to an operator other than the provider and the interconnection purchaser.

## **Article 18**

During the transitional period which ends on 31 December 2005, the incumbent operator's interconnection charges shall be subject to control, under the supervision of the Regulatory Authority. During this period, its charges may not exceed the levels established in its terms of reference.

This period will be used for putting into place the interconnection cost review methods pursuant to the provisions of the preceding articles.

At the end of the period, the Regulatory Authority shall decide:

- a) either to stipulate new tariff ceilings based on the interconnection cost analysis;
- b) or, if it considers the incumbent operator's management to be inefficient, to set tariff ceilings based on the experience of comparable foreign countries, particularly those neighbouring Burkina Faso.

The interconnection charges of operators having at least one-third of the national transmission links and/or at least one-third of the international capacity may be subject to capping by the Regulatory Authority if the latter deems those operators to be proposing tariffs that are greatly in excess of their production costs.

#### **Article 19**

The charges applied by the incumbent operator in respect of calls set up from its own network to an interconnected network must correspond to the sum of the following two components:

- a) the interconnection charge applicable to the call on the basis of the existing schedule and of the means of routing as far as the point of interconnection;
- b) the charges for terminating the interconnected call as specified in the interconnection agreement between the two operators.

The Regulatory Authority may make checks to ensure that the termination charges are reasonable and in line with the operators' actual costs. In cases of abuse, it may require that the charges be fixed on the basis of the observed costs.

#### **Article 20**

The incumbent operator and the interconnected operator shall, at the intervals specified in the interconnection agreement, draw up a statement of their respective debts and receivables, comprising:

- a) on the credit side for the incumbent operator, the interconnection charges relating to interconnection traffic from the interconnected network to the incumbent operator's network;
- b) on the debit side for the incumbent operator, the termination charges for calls from its network to the interconnected network.

## **CHAPTER V: DISPUTE RESOLUTION**

#### **Article 21**

The Regulatory Authority shall examine any interconnection-related fact or act giving rise to a difficulty, whether on the initiative of a complainant or on its own initiative.

In the case of a complaint lodged by an operator, the latter shall address its complaint and all supporting documentation to the Regulatory Authority in as many copies as there are parties concerned, plus three copies for the Regulatory Authority. It shall do so:

- a) either by registered letter with acknowledgement of receipt;
- b) or by delivery to the headquarters of the Regulatory Authority against issuance of a receipt.

The submission shall indicate the facts having given rise to the dispute, state the grounds on which the submission is based and specify the claims being made.

It shall further indicate the capacity of the complainant, and in particular:

- a) if the complainant is a natural person: his or her family name, first name, place of residence, nationality, and date and place of birth;
- b) if the complainant is a legal entity: its name, form, registered office, entity representing it for legal purposes and the capacity of the person having signed the submission; in addition to which the statutes are to be attached to the submission.

The complainant shall indicate the family name(s), first name(s) and place(s) of residence of the respondent(s), or, in the case of one or more legal entities, their name(s) and registered office(s).

If the submission does not satisfy the above rules, the Regulatory Authority shall order the complainant, by registered letter with acknowledgement of receipt, to complete it.

As soon as the submission has been received in full, it shall be recorded in an official register and stamped with its date of arrival. Any documents submitted to the Regulatory Authority during the course of the inquiry are likewise stamped with their date of arrival.

The Regulatory Authority shall send to the parties mentioned in the submission, by registered letter with acknowledgement of receipt, the following documents:

- a) copy of the submission document;
- b) copy of documents attached to the submission document;
- c) notification of the date by which the parties must transmit to the Regulatory Authority their written remarks and attached documents.

The respondents shall submit their remarks and documents to the Regulatory Authority by registered letter with acknowledgement of receipt or deposit them at the headquarters of the Regulatory Authority in as many copies as there are parties concerned plus three further copies.

Upon receipt of the aforementioned remarks and documents, the Regulatory Authority shall transmit them by registered letter with acknowledgement of receipt to the other parties, informing them of the date by which they must submit to the Regulatory Authority their observations and attached documents in support of their reply.

Any remarks and/or documents submitted late shall not be taken into account in the discussions. All notifications shall be sent to the place of residence or headquarters of the parties, as specified in the submission document. The parties must inform the Regulatory Authority, by registered letter with acknowledgement of receipt, of the address to which they wish to have documents sent if that address is different from the one specified in the submission document.

Where the parties annex documents in support of the submission or of their remarks, they shall at the same time draw up an inventory thereof and submit them to the Regulatory Authority in the number of copies stipulated above. In the event that the number, volume or nature of those documents poses a problem for the production of copies, the Regulatory Authority may authorize the parties to produce only one single copy.

The other parties may then consult such documents at the headquarters of the Regulatory Authority and make copies thereof at their own expense.

## **Article 22**

The Regulatory Authority shall be empowered to initiate an inquiry itself where it suspects, is informed of by a third party or discovers in the course of market analyses, abusive behaviour on the part of an operator providing interconnection, including, but not restricted to:

- a) invoicing to other operators of access, capacity-leasing or interconnection charges that are higher than those it invoices itself or that it invoices to its subsidiaries in respect of comparable services;
- b) sale of interconnection services at a price that is lower than their production cost as established taking account of the tariffs applied to other operators.

The Regulatory Authority may also open an inquiry in the event of an operator's failure to communicate, by the deadlines stipulated in this Decree, its accounting records and the elements and calculations justifying the interconnection costs.

### **Article 23**

The Regulatory Authority shall render its substantiated decision following examination of the complaints, replies and remarks received from the interested parties. Prior to this, it may, as appropriate:

- a) request the parties or other parties to provide any additional details necessary to ensure that it is properly informed;
- b) where the case is particularly complex, submit to the parties for their remarks its preliminary conclusions or draft decision.

In such cases, it shall set absolute deadlines for submission of the additional details or remarks and for their examination and publication of its final decision.

The Regulatory Authority's decisions shall be enforceable as from their notification to the concerned parties. Any appeal against such decisions brought before the competent jurisdictions shall not suspend their enforcement.

## **CHAPTER VI: ADMINISTRATIVE SANCTIONS AND COMPENSATION**

### **Article 24**

The Regulatory Authority shall apply, in respect of offending operators, the sanctions foreseen under Act No. 051/98/AN of 4 December 1998 on reform of the telecommunication sector and under its implementing texts.

### **Article 25**

Where an operator's failure to comply with the provisions of this Decree harms the interests of another operator, the Regulatory Authority may require the former to pay compensation for the losses suffered by the latter. The Regulatory Authority shall intervene when called upon to do so by the injured operator, in accordance with the procedures referred to in § VI above. It shall justify its decision on the basis of a detailed evaluation of the losses suffered by that operator, drawn up following an open debate.

## **SECTION II: FINAL PROVISIONS**

### **Article 26**

The present Decree abrogates all previous provisions stipulating otherwise and shall come into effect as from the date of its signature.

### **Article 27**

The Minister of Communication and the Minister of Commerce, Industry and Crafts are each entrusted, in their respective areas of competence, with implementing this Decree, which shall be published in the *Journal officiel* of Burkina Faso.

Ouagadougou, 13 March 2000



**ANNEX 3**

**DECREE NO. 00-230/P-RM of 10 MAY 2000  
ON INTERCONNECTION IN THE  
TELECOMMUNICATION SECTOR**

**REPUBLIC OF MALI**

(UNOFFICIAL TRANSLATION)

**OFFICE OF THE PRIME MINISTER**

**REPUBLIC OF MALI**

--==-- Un Peuple - Un But - Une Foi  
GENERAL SECRETARIAT --==--  
OF THE GOVERNMENT  
--==--

**DECREE No. 00-230/P-RM of 10 MAY 2000  
ON INTERCONNECTION IN THE  
TELECOMMUNICATION SECTOR**

THE PRESIDENT OF THE REPUBLIC,

In view of the Constitution,

In view of Order No. 99-043/P-RM of 30 September 1999 governing telecommunications in the Republic of Mali;

In view of Order No. 00-028/P-RM of 29 March 2000, modifying Order No. 99-043/P-RM of 30 September 1999 governing telecommunications in the Republic of Mali;

In view of Decree No. 00-055/P-RM of 15 February 2000 appointing a Prime Minister;

In view of Decree No. 00-057/P-RM of 21 February 2000 appointing members of the Government  
IN THE FRAMEWORK OF THE COUNCIL OF MINISTERS,

**HEREBY DECREES:**

Pursuant to Article 17 (1) of Order No. 99-043/P-RM of 30 September 1999 governing telecommunications in the Republic of Mali, the operators appearing on the list drawn up pursuant to Article 6 of that Order are under obligation to provide access to their telecommunication networks and/or services to all those requesting it, under general conditions of provision founded on objective, transparent and non-discriminatory criteria ensuring equality of access. To that end, the dominant operators shall negotiate and conclude interconnection contracts or agreements.



# CHAPTER 1: GENERAL PROVISIONS

## Section 1: Definitions

### Article 1

(1) For the purposes of this Decree, the following definitions shall apply:

*Order*: Order No. 99-043/P-RM of 30 September 1999 governing telecommunications in the Republic of Mali.

*Requesting operator*: Operator requesting the conclusion of, or having concluded, an interconnection contract for its networks and/or services with a dominant operator.

*Dominant operator*: Operator appearing on the list of operators drawn up under Article 16 of the Order, considered by the Minister as dominant pursuant to that provision.

*RIO*: Reference interconnection offer describing the technical and tariff conditions for interconnection, as well as the standard interconnection services, as approved by CRT.

*CRT*: Comité de Régulation des Télécommunications.

(2) Without prejudice to the definitions set forth above, the definitions contained in the Order shall apply.

## Section 2: Purpose

### Article 2

(1) The purpose of this Decree is to determine the procedure and arrangements to permit the adequate interconnection of public telecommunication networks and/or services in the interests of all users of those networks and/or services. The interconnection obligations shall be set out in the licences granted to operators.

(2) Where it is called upon to intervene in order to ensure adequate interconnection through or pursuant to this Decree, CRT shall take particular account of:

- the need to ensure end-to-end telecommunications of a satisfactory standard for users;
- the need to encourage the emergence and development of a competitive market;
- the need to ensure the equitable and appropriate development of a telecommunication market;
- the need to promote the establishment and development of telecommunication networks and/or services in Mali, interconnection of national networks and interoperability of services, and access to those networks and/or services;
- the principles of transparency, non-discrimination and proportionality;
- the determination of tariffs based on the criteria of objectivity, transparency, non-discrimination and cost-orientation;
- the need to ensure provision of a universal service and/or universal access;
- the need to safeguard the general interest, particularly the safety and security of users and of the staff operating telecommunication networks, the protection of networks and especially the exchange of associated control and management information, the

interoperability of services and of terminal equipment, data protection and, where appropriate, proper use of the radio-frequency spectrum.

## **CHAPTER 2: PRINCIPLES APPLYING TO ALL OPERATORS**

### **Article 3**

(1) In principle, interconnection shall be the subject of a private-law contract freely negotiated between the parties. This shall include written or oral agreements concluded by operators with or between their subsidiaries, partners or services.

(2) Operators shall transmit to CRT a copy of any interconnection contract or agreement, within 15 days of its conclusion. Operators shall indicate to CRT those contractual provisions which, by virtue of the details they contain relating to the commercial policy of the operators concerned, they consider to be confidential. CRT reserves the right to judge whether the information in question is to be considered confidential.

### **Article 4**

(1) The parties shall undertake to respect the principle of confidentiality of any information exchanged within the framework of the negotiation and/or conclusion of an interconnection contract or agreement, without prejudice to the right of the parties to modify or depart from this principle of confidentiality in the event of the non-respect by one of the parties of its legal, regulatory or contractual obligations in regard to interconnection.

(2) Operators possessing information within the framework of the negotiation or implementation of an interconnection contract or agreement may use such information solely for the purposes explicitly foreseen in their communication. Such information shall not be communicated to other services, subsidiaries or partners for which they could constitute a competitive or commercial advantage.

### **Article 5**

Any request for interconnection shall be formulated in writing and sent by registered letter to the operator of the networks and/or services with which interconnection is required. The request shall indicate at least the following:

- the date of bringing into commercial use of the proposed interconnection;
- details of the interconnection services requested.

## **CHAPTER 3: PRINCIPLES APPLYING TO DOMINANT OPERATORS**

### **Section 1: Reference interconnection offer**

#### **Article 6**

(1) In accordance with Article 18 (1) of the Order and in order to achieve the purposes of Article 2 above, dominant operators are required to respond favourably to any reasonable request for interconnection, provided it is technically feasible, including requests for connection to the network and points other than the network termination points offered to the majority of end users.

Dominant operators are, moreover, required to publish a reference interconnection offer (RIO), which must be approved by CRT prior to its publication.

(2) This RIO shall include at least a description of the interconnection services offered, including in particular:

- a) switched traffic routing services
  - service for terminating calls to geographic numbers (fixed-network numbers)
  - service for terminating calls to mobile numbers (mobile-service numbers)
  - service for terminating calls to emergency service numbers
  - outgoing call service with call-by-call selection of the call carrier
  - outgoing call service with preselection of the call carrier (mandatory provision as from [...])
  - call transit service between two operators interconnected via the dominant operator
- b) supplementary and advanced functionality services and means of implementing such services
  - geographic number portability service (mandatory [provision as from [...]])
  - portability implementation service
  - service providing routing to ported numbers
  - portability service for service and/or special-rate numbers (80x, 90x, 12x, 13x) (mandatory provision as from [...])
  - portability implementation service
- c) interconnection link service
  - online interconnection link service
  - interconnection link service, located with the provider
  - interconnection link service, located with the requesting operator
- d) leased-line end-to-end service
  - partial leased-line access service
- e) period of validity of offer
- f) indication of the location of interconnection sites and description of their technical functionalities, including the conditions for access to those points and the charging information provided at the interconnection interface
- g) indication of the rules or standards used, which, in principle, may not depart from the international rules or standards
- h) tariff conditions for interconnection services
- i) description of the testing procedure
- j) full description of the proposed interconnection interfaces, particularly the signalling protocol and possibly the encryption methods used at those interfaces
- k) indication of the maximum time period within which the interconnection is to be brought into service.

(3) The list shown in (2) above is without prejudice to CRT's right to modify, on a case-by-case basis, the list of interconnection services to be included in the RIO of a dominant operator.

## **Article 7**

- (1) Dominant operators are required to accede to any reasonable request for interconnection by a requesting operator, even if that request does not relate to the conditions and/or services set forth in the RIO.
- (2) At the request of the dominant operator, CRT shall assess the reasonableness of a request for services or service components not specified in the RIO. The request shall be deemed reasonable if it relates to one or more of the following services:
  - switched traffic routing services
  - routing of traffic for termination in another country (by destination)
  - directory enquiries call termination service
  - supplementary and advanced functionality services
  - service for terminating calls to other non-geographic number series (numbers not provided for under Article 7 (2), e.g. 80x, 90x)
  - service for outgoing calls to individual numbers of the interconnected operator (118, 12, 13, 80x, 90x).
- (3) Dominant operators shall refrain from imposing any unjustified technical restrictions or restrictions on use.

## **Section 2: Standard interconnection contract**

### **Article 8**

- (1) Dominant operators shall draw up a standard interconnection contract to serve as a basis for negotiation of their interconnection contracts.
- (2) Such contracts shall specify at least the following:
  - the commercial and financial relations between the parties, particularly the invoicing and collection procedures and payment conditions;
  - the procedures to be applied in the event of a proposal by one of the parties to modify the interconnection offer or a request for a new interconnection service (whether offered by the dominant operator or otherwise);
  - the time-frame and conditions for negotiation of the interconnection contract;
  - the essential transfers of information between the two operators and the regularity with which, or deadlines by which, such information is to be communicated;
  - the details of the interconnection services;
  - measures designed to safeguard the general interest, particularly the safety and security of users and of the staff operating telecommunication networks, the protection of networks and especially the exchanges of associated control and management information, the interoperability of services and of terminal equipment, data protection and, where appropriate, proper use of the radio-frequency spectrum;
  - the mutual exchanges of information and prior notice required where modifications are made to the system of an interconnected operator obliging another interconnected operator to adapt its own facilities;

- the designation of points of interconnection and description of the technical arrangements for interconnecting thereto;
- forecasting arrangements in regard to traffic, routing and the introduction of interconnection interfaces and the time-frames for delivery of interconnection links;
- trials to be carried out ahead of the definitive bringing into service of the interconnection or subsequent modifications thereto;
- arrangements for the reciprocal dimensioning of the equipment used to enable interconnection;
- measures implemented to ensure equal user access to the different networks and services;
- procedures for intervention and fault clearance;
- definitions and limitations in regard to liability and compensation between operators;
- common law provisions in cases of failure to meet contractual obligations;
- possible intellectual property rights;
- clauses relating to confidentiality.

## **Article 9**

(1) The dominant operator shall draw up a schedule for the negotiation of all matters involved in the conclusion of interconnection contracts. This schedule is agreed upon between the dominant operator and requesting operator within 15 days as from the date of the request for interconnection.

(2) The schedule foreseen for the duration of the negotiations for an interconnection contract by a dominant operator may in no case exceed four months, and the actual bringing into use of the interconnection must take place within six months. Where objective reasons so justify, CRT may authorize an overrunning of those periods. Such objective reasons include a significant number of simultaneous and unexpected requests for interconnection, and equipment delivery deadlines that are beyond the control of the dominant operator. Under all circumstances, the actual bringing into use of the interconnection must take place within a period of eight months. All of the time periods referred to under this article shall be deemed to commence on the date of the initial request for interconnection. Such periods are without prejudice to any shorter periods to which dominant operators may have committed themselves in the RIO.

## **Article 10**

(1) Where the request for interconnection relates to services or service components that do not form part of the RIO, the dominant operator shall have 15 days within which to inform the requesting operator whether the description provided of the interconnection services or arrangements requested is complete or incomplete, and, as the case may be, of the clarifications required. Once it has received any such clarifications from the requesting operator, the dominant operator shall have seven days within which to confirm the complete or incomplete nature of the description of the interconnection services or arrangements requested, and shall, if necessary, request a second set of clarifications. Once the dominant operator has received the second set of clarifications, and subject to any conclusions to the contrary on the part of CRT, the request shall be presumed complete.

(2) In the event that the request for interconnection comprises service components or interconnection conditions that do not form part of the RIO, the four-month period referred to in Article 9 (2) above shall be deemed to have commenced once the description of all the service components requested is complete.

(3) In the event that the dominant operator is not reasonably capable of providing an interconnection service that is not covered in the RIO, it shall so inform the requesting operator within four weeks, with a copy to CRT. The latter shall then have 30 days within which to release the dominant operator from its obligation to interconnect, in accordance with Article 25 (3) of the Order, or grant it a longer period within which to effect the interconnection. CRT shall inform the operators concerned of its decision.

### **Section 3: Publication of the RIO and of the standard interconnection contract**

#### **Article 11**

The RIO and standard interconnection contract of the dominant operators shall be communicated free of charge to any person requesting them, within two working days following the request.

If CRT sees that such information is not being provided in a timely fashion, it reserves the right to publish the documents in an appropriate form.

### **Section 4: Non-discrimination**

#### **Article 12**

All dominant operators shall provide interconnection under non-discriminatory conditions. This obligation concerns, among other things, the technical and financial conditions for interconnection, such as the deadlines for making interconnection services available, access to information relating to new interconnection services on offer, and the technical quality of services and their availability. A dominant operator may not act in a discriminatory manner in favour of its own services or of subsidiaries or third parties.

### **Section 5: Determination of interconnection tariffs**

#### **Article 13**

(1) The interconnection tariffs of dominant operators must respect the principles of transparency and be oriented to the costs of an efficient operator in a competitive situation. The burden of proving that its tariffs correspond to those principles lies with the dominant operator providing interconnection to its facilities.

(2) Tariffs must be sufficiently unbundled, such that the requesting operator is not required to pay for a component that is not strictly related to the service requested.

(3) In the absence of probative accounting elements, CRT reserves the right to base its assessment of the transparent and cost-oriented nature of the interconnection services on any cost studies or information it considers to be reliable. Where appropriate, CRT shall base its assessment on international references, particularly from countries in the subregion.

#### **Article 14**

(1) All tariffs for interconnection services provided by dominant operators shall serve to remunerate the actual use of the transport and service network and shall reflect the corresponding

costs. The dominant operators must be able to demonstrate that their interconnection tariffs do in fact reflect costs.

(2) CRT may request the dominant operators to provide it with any item of information that enables it to determine whether their interconnection tariffs are cost-oriented, particularly in cases where the services described in the interconnection contract do not appear in the RIO.

(3) The interconnection tariffs of dominant operators must be based on the following principles:

- The costs in question must be relevant, i.e. they must have a direct or indirect causal link with the interconnection service provided.
- The costs in question must be conducive to an increase in economic efficiency over the long term, i.e. they must take account of investment for network renewal based on the best technologies industrially available and optimum network dimensioning, with a view to maintaining the desired quality of service.
- Tariffs shall include an equitable contribution, in accordance with the principle of proportionality, to the costs that are common both to interconnection services and other services, with due respect for the principles of cost relevance and economic equilibrium on the part of the dominant operator.
- Tariffs shall include a normal return on investment, in accordance with the provisions of Article 17 below.
- Tariffs may be associated with a time-based modulation to take account of congestion in the transmission and switching capacities of the operator's general network.
- The unit tariffs applicable for a given interconnection service shall be independent of the volume or capacity of the general network components used by that service.
- The tariff units must correspond to the needs of the interconnected operators.

## Article 15

In determining costs, dominant operators are required to respect the rules in regard to allocation of the following costs:

(1) Costs that are specific to interconnection services shall be fully allocated to interconnection services.

(2) Costs that are specific to the dominant operator's services other than interconnection shall be excluded from the basket of costs pertaining to interconnection services. Excluded in particular are access costs (local loop) and commercial costs (publicity, marketing, sales, administration of non-interconnection sales, non-interconnection invoicing and collection).

(3) General network costs are shared between the interconnection services and other services on the basis of the actual usage made of the general network by each of those services.

(4) The relevant common costs in terms of the activity of a telecommunication operator are shared between interconnection services and services other than interconnection.

## Article 16

In order to assess the interconnection tariffs of dominant operators, the equity cost is established using the capital asset pricing model (CAPM), which is based on the following equation:

$$k_e = R_f + \beta (R_m - R_f)$$

- risk-free rate  $R_f$
- market premium  $(R_m - R_f)$

- specific investment risk  $\beta$

The cost of the debt is determined from the risk-free rate  $R_f$ , to which is added a risk premium in regard to the company's debt. The capital cost is the weighted average of the two values thus calculated.

### **Article 17**

(1) The interconnection tariffs of the dominant operators for a given year are based on the relevant projected average accounting costs for the year in question, reviewed by CRT with account being taken also of:

- the effectiveness of new investments made or foreseen by the dominant operator in terms of the best technologies industrially available;
- international references, particularly in countries of the subregion, in regard to interconnection tariffs and costs.

(2) The average accounting costs are established on the basis of the information derived from the projected accounts, the dominant operator's most recently audited accounts and the productivity gains recorded.

(3) CRT may define the conditions for a reduction in the interconnection tariffs of dominant operators over the years with a view to encouraging economic efficiency vis-à-vis the international references, particularly those in the countries of the subregion, in the area of interconnection tariffs and costs.

(4) To take account of the impact of increasing competitiveness on the interconnection services market, CRT may establish a new method for determining interconnection tariffs.

## **Section 6: Operator accounting**

### **Article 18**

(1) Dominant operators are required to keep separate accounts for their telecommunication activities, just as if those activities were being carried out by legally independent companies, to enable the identification, on the basis of their calculations and the details of the allocation methods applied, of all of the expenditure and revenue components associated with their telecommunication activities, including a breakdown by capital investment and structural expenditure item for telecommunication activities.

(2) Such separate accounting makes it possible, in particular, to identify the following types of cost:

- General network costs, i.e. costs relating to network components used by the operator both for services to its own users and for interconnection services (components relating to both switching and transmission).
- Costs specific to interconnection services, i.e. costs directly incurred solely by those services.
- Costs specific to the dominant operator's services other than interconnection, i.e. costs incurred solely by those services.
- Common costs, i.e. costs not pertaining to one of the above categories.

The dominant operator shall place its separate accounting and the information derived therefrom at CRT's disposal.



- (3) Dominant operators shall place at the disposal of any interested person a description of their accounting system, showing the main categories within which costs are grouped and the rules that are applied to the distribution of costs allocated to interconnection.
- (4) The present article (Article 18) shall likewise apply to operators which, by virtue of special or exclusive rights, are required to keep separate accounts.

## **Section 7: Approval of RIOs by CRT**

### **Article 19**

- (1) The RIO shall be submitted to CRT for approval. It shall be accompanied by all supporting documentation attesting to application of the criteria of objectivity, transparency and cost-orientation, as well as conformity with the objectives laid down in Article 1.
- (2) CRT may refuse to approve all or part of the RIO, for reasons including the following:
- CRT considers that the RIO does not respect the criteria or is not in conformity with the objectives set forth under § 1 above;
  - the operator's accounting does not allow for adequate unbundling of the costs relating to the various services;
  - it is not possible, on the basis of the information provided, to judge the proposed tariffs;
  - inconsistency between the tariffs applicable to subscribers and the interconnection tariffs;
  - equitable treatment not respected;
  - true competition pursuant to the relevant national and community legislation is not assured;
  - the requirements necessary to guarantee the general interest are not respected.
- (3) In the event of such refusal, CRT may require that the RIO be amended in a manner that it considers appropriate in order to remedy the situations referred to in § 2 above.

### **Article 20**

- (1) The RIO shall be approved for a maximum period of one year, expiring on 31 December of the year for which it was approved, unless tacitly renewed.
- (2) The RIO may be amended at the initiative of the dominant operator or CRT.
- (3) Any proposal for amendment of the RIO by the dominant operator (in particular any proposal to modify tariffs) shall be sent by registered letter at least six months before the desired entry into force. It shall be accompanied by all supporting documentation attesting to application of the criteria of objectivity, transparency and cost-orientation, as well as the objectives set forth in Article 1. Upon receipt of the proposal and according to the impact of the proposed amendments, CRT shall organize a public consultation in regard to those amendments. The new RIO shall enter into force only after its approval by CRT.
- (4) The period of time between submission of the proposed modification and the entry into force of the amendments may be shortened if this causes no prejudice to the requesting operators.

### **Article 21**

CRT may at any time impose the conditions and tariffs pertaining to the RIO as well as the conditions and tariffs applicable to the services provided by the dominant operators pursuant to Article 7 of this Decree, or the modification of such conditions and tariffs, particularly in the following cases:

- where it is aware of more favourable conditions actually being applied by the dominant operator in regard to identical or similar services;
- where it ascertains that the conditions and tariffs being applied in regard to services not covered by the RIO did not respond to the objectives established by this decision;
- where it deems that the conditions on the basis of which the RIO was approved have changed, or that the information on the basis of which the RIO was approved was inaccurate or inadequate;
- where the objectives in regard to equitable treatment are not being met;
- where it has not been possible to approve a new RIO before the expiry date of the current RIO.

## **Article 22**

(1) In the event of modification of the RIO while the negotiation of an interconnection contract is under way, the requesting operator shall have the right to specify, insofar as those provisions of the RIO that apply to the said negotiations are concerned, which of the versions of the RIO shall apply.

(2) In the event of modification of the RIO following conclusion of an interconnection contract on the basis of a previous RIO, the requesting operator shall have the right to require that the interconnection contract be amended by inclusion of the amended provisions of the RIO that it wishes to have incorporated in its contract. The interconnection contract shall be modified by right upon receipt of the requesting operator's letter by virtue of the theory of offer and acceptance.

## **CHAPTER 4: SETTLEMENT OF DISPUTES RELATING TO INTERCONNECTION**

### **Article 23**

(1) CRT shall automatically be responsible for handling any request stemming from the dispute relating to the negotiation, conclusion or execution of an interconnection contract. Referral of the matter to CRT shall be done by registered letter with acknowledgement of receipt, or by direct deposition with acknowledgement of receipt.

(2) As from the date of referral of the matter, CRT shall have a period of 45 calendar days within which to settle the dispute, once the various parties have stated their case. A record of the conciliation or of non-conciliation shall be drawn up at the end of the proceedings.

(3) Where conciliation is not achieved, the matters in dispute shall be brought before the competent jurisdictions.

## **CHAPTER 5: FINAL PROVISIONS**

### **Article 24**

The Minister of Communication and the Minister of Economy and Finance are entrusted, in their respective areas of competence, with the execution of this Decree, which shall take effect as from the date of its signature.

## Article 25

This Decree, which abrogates all previous provisions that are inconsistent therewith, shall be recorded and published in the *Journal officiel*.

Bamako,

Prime Minister:  
Mandé SIDIBE

President of the Republic:  
Alpha Oumar KONARE

Minister of Economy and Finance:  
Bacari KONE

Minister of Communication:  
Ms ASCOFARE Oulématou TAMBOURA

---