

4.4 Universal Access and Service Policy

This chapter addresses all aspects and considerations related to developing a universal access and service (UAS) policy. It is intended as a practical guide to the various steps that need to be taken in the process of policy formulation. It covers three main themes of UAS policy formulation and implementation:

- The framework, context & institutional considerations of UAS policy, including its relationship to broadband policy is discussed in [Section 4.1](#);
- The UAS policy development process, including consultation, finance and economic analysis which is described in [Section 4.2](#); and
- Legal and regulatory modifications that are likely required for UAS policy implementation are discussed in [Section 4.3](#).

The chapter provides an overview of the various considerations, steps and analyses that go into developing a UAS policy. [Chapters 5, 6, 7 and 8](#) of this Module discuss most of the issues in more depth and also provide greater insight on how to implement a UAS policy.

Reference Documents

- [Toward universal access to broadband in Australia: a case study](#)
- [Universal Access & Service \(UAS\) and Broadband Development](#)

4.4.1 UNIVERSAL ACCESS AND SERVICE POLICY FRAMEWORK

[Section 4.1.1](#) makes the case that since both developing countries and developed countries typically include both universal access and universal service provisions, the term universal access and service (UAS) policy should therefore be used as the generic policy name. Before developing the specific UAS objectives, targets and strategies, the overall policy context and relationship of UAS policy to other policies should be examined. This is discussed in [Section 4.1.2](#).

In particular, [Section 4.1.3](#) deals with the relationship of UAS to broadband policies. Discussion as to whether to integrate a UAS policy within the communications sector or ICT policy, or to opt for a separate policy document is provided in [Section 4.1.4](#).

[Section 4.1.5](#) discusses the question of which agency should develop UAS policy and which organization should be responsible for implementing the policy.

[Section 4.1.6](#) concludes with the provision of suggestions on the structure of a UAS policy and the key principles of best practice.

Reference Documents

- [Toward universal access to broadband in Australia: a case study](#)
- [Universal Access & Service \(UAS\) and Broadband Development](#)

4.4.1.1 SCOPE OF POLICY

As more and more countries include both concepts of universal access and universal service in their policies, it makes sense to use the generic term universal access and service (UAS) policy. In the past, developing countries typically focussed mostly on universal access (UA), meaning community and publicly shared access, as UA was the appropriate and most feasible target. However, since the maturation of mobile communications, which extended services further throughout the country and lowered access barriers to take up, many developing countries might realistically target universal service (US) for telephony in urban areas. Furthermore, in addition to UA targets in rural areas, the objective of increasing rural penetration can be set. An example of this is Ghana. In its National Telecommunications Policy of 2004, Ghana has set the

objective to achieve a universal service penetration of 25 per cent of the total population, and of 10 per cent in rural areas, by the year 2010, as summarized in the Practice Note UAS Policy of the Republic of Ghana. At the same time, while targets for Internet and broadband service provision typically need to be more modest and focus on public access (e.g., telecentres and cybercafés) and can thus be called universal access targets, increasing private penetration and promoting universal service can be part of the overall policy objective. The trend towards implementing Internet points of presence in semi-urban and rural population centres allows for individual uptake, often first by businesses and institutions. Strategies often include support to early adopters such as schools and colleges. Increasingly, UAS policies include backbone provision as an element of their policies, often to extend the existing national backbone to more remote locations as required, to add a second tier backbone that increases the capillarity beyond the main routes or to upgrade capacity to broadband. In the more developed world which previously had universal service as its policy goal, the onset of broadband has led to re-use of the term universal access. It is often recognized that universal availability of broadband services and affordable access to those services may not necessarily yield universal service-like household penetration for many reasons, at least in the medium-term, even though the provision of affordable access is an important goal. Also, although many middle-income countries, as diverse as Malaysia, Botswana and Saudi Arabia, may not yet have achieved UA in all rural areas, it is reasonable that they contemplate the achievement of US within the time frame of their policies.

Thus, this chapter speaks of UAS policies. Some countries also reflect both concepts in the name of their policy, executing agency or fund, as seen in the Practice Note Table of Ministries, Policies and UAS/UASF Executing Agencies.

Practice Notes

- [Table of Ministries, Policies and UAS/UASF Executing Agencies](#)
- [UAS Policy of the Republic of Ghana](#)

4.4.1.2 UAS POLICY IN CONTEXT

Most countries have a telecommunications, communications or electronic communications policy. Some countries are broadening its scope and calling it an Information and Communications Technology (ICT) policy, including broadcasting and IT [1]. Some countries with a telecommunications policy may also have a separate national ICT policy or strategy, or an information society policy. In addition, some countries have separate broadband policies, which stand alone in addition to the telecommunications or ICT policy [2]. Telecom or communications policies typically focus on the industry, its networks and services, and the role of regulation to ensure fair competition between providers as well as consumer interests. These policies typically cover a wide range of topics, including:

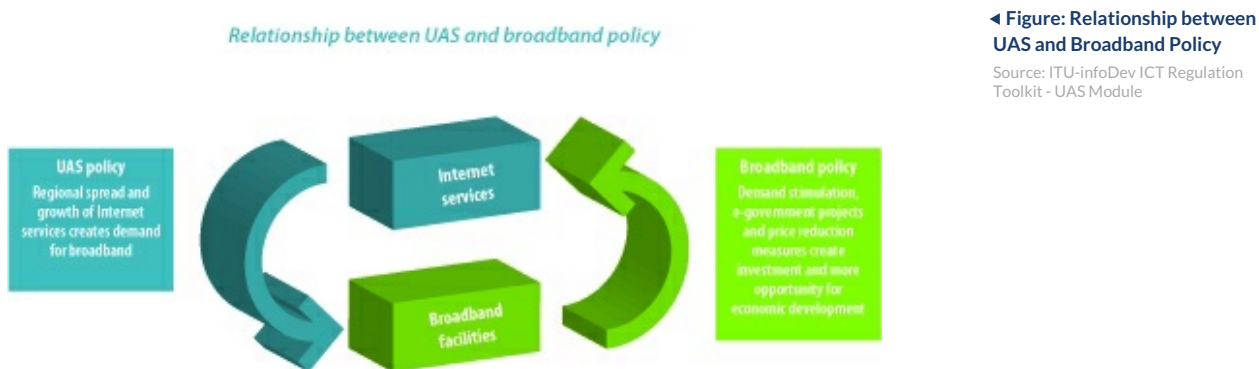
- Basic principles and objectives;
- Liberalization;
- Competition;
- Technology and convergence;
- Regulation;
- Interconnection; and
- Pricing and consumer rights.

National ICT policies typically concern themselves with readying the country, its economy and society for the information society. This usually cuts across various sectors, including education and health, finance, small and medium business and government (e.g., developing e-government capacity and services). In developing countries two other key elements of ICT strategy are often human resource development (including enhancement of education and training) and fiscal measures (e.g., reduced import duties on computers, network equipment and software). Telecommunications and ICT policies often have a component that relates to universal access or service. Telecommunications policies typically set the objective of providing affordable communications to all citizens and to achieve regional equity, or balance, in the development of networks and services. There are often specific sections addressing universal access or service (UAS). National ICT policies may also specifically address methods of promoting equal access, serving remote and rural areas and reaching disadvantaged population groups (e.g., women, the elderly, certain indigenous people). A UAS policy therefore sits under the umbrella of the larger communications and national ICT policy. If it is a separate policy document, it is typically more detailed and includes specific strategies and implementation arrangements to achieve UAS. When most of the main principles, the importance of communications to socio-economic development, and equal access, have already been addressed in the communications sector policy, the UAS policy tends to focus on mechanisms for funding UAS and the main measures and instruments used to achieve the policy goals. This includes the vision, objectives, structure, and administrative or operational practices of a Universal Access and Service Fund (UASF) if that funding mechanism has been

chosen.

4.4.1.3 RELATIONSHIP TO BROADBAND POLICY

Universal access and service (UAS) policies and broadband policies influence each other. UAS policies promote the regional spread of Internet services and stimulate demand, which in turn can increase the demand for broadband. On the other hand, broadband policies use a range of regulatory and fiscal options to reduce costs (e.g., international gateway liberalization) and facilitate broadband network investment, which in turn facilitate better access at lower prices. The figure below illustrates the interplay between UAS and broadband policy.



Several countries have separate broadband policies. These include Chile, India, Jordan, Malaysia and Pakistan. The purpose of having a broadband policy generally springs from the perception of government that acceleration in the growth and geographical spread of broadband-capable networks can facilitate enhanced Internet and ICT services and implementation of Next Generation Networks (NGNs).

In other countries, where broadband is well advanced in general, the boundaries between a UAS policy and broadband policy can be blurred, and in some cases the two policies are merged. The reason is that UAS becomes all about broadband once telephony targets have been achieved. For instance, Chile has a new Information Society Universal Access policy, which encompasses the broadband policy and the Universal Access and Service Fund (UASF). Some other governments are also considering the use of UASF resources to increase the reach of broadband networks and services into regional and rural areas that are beyond market-reach. However, issues of financial sustainability and the regulatory environment required for broadband to thrive commercially must be addressed first. It is generally recognized that the commercial justification of broadband itself depends on the growth in demand of enhanced speed Internet and also on the deployment of e-government and e-commerce services that are broadband dependent. Since there is a debate about which should come first – the network capacity or the demand – some governments are increasingly thinking about the policy challenge of how to encourage or facilitate more ubiquitous deployment on national IP backbones (especially optical fibre systems), especially into lower population areas, such as to the rural district centres and broadband access networks.

Country examples The pre-ambule to India's broadband policy published in 2004 recognizes and highlights the two sides to the broadband issue:

Recognizing the potential of ubiquitous broadband service in growth of GDP and enhancement in quality of life through societal applications including tele-education, tele-medicine, e-governance, entertainment as well as employment generation by way of high speed access to information and web-based communication, government has finalized a policy to accelerate the growth of broadband services.

Demand for broadband is primarily conditioned and driven by Internet and PC penetration. It is recognized that the current level of Internet and broadband access in the country is low as compared to many Asian countries. Penetration of broadband, Internet and Personal Computer (PC) in the country was 0.02 per cent, 0.4 per cent and 0.8 per cent respectively at the end of December, 2003. Currently, high speed Internet access is available at various speeds from 64 Kbps onwards and presently an always-on high speed Internet access at 128 Kbps is considered as broadband [1].

There are no uniform standards for broadband connectivity and various countries follow various standards. Government envisions an accelerated growth in Internet penetration and PC as the success of broadband would largely be dependent on their spread [2]. The following statement from Pakistan's broadband policy highlights the regulatory, content and fiscal measures required to enable broadband take-up: Broadband lessons from the world markets Countries with high penetration of broadband users such as the Republic of Korea, Japan and Canada have all implemented conscious policies for the growth of broadband in their countries. These policies have included growth enablers such as price reductions for

the use of infrastructure, unified licensing for service providers, the government's setting of strict annual broadband penetration targets, content and e-commerce development incentives and lowering of the price and tax barriers on the broadband terminal equipment. The resultant growth and high penetration of broadband has contributed significantly to the social and economic standing of these countries. Realizing the social and economic benefits of broadband, other countries such as India and Egypt have also recently issued similar strategies for the growth of broadband in their countries [3].

It seems therefore recommendable for countries to formulate specific and stand-alone national broadband policies, that address the whole range of available options and measures that can elevate broadband infrastructure development and facilitate content and service development in key sectors such as education, health, business and finance which in turn stimulate and encourage broadband uptake and usage. UAS policies then can complement the national broadband policies, by addressing areas and customer groups that are beyond the market and require special (financial) intervention to gain access to basic broadband services (e.g. the minimum acceptable speed of what is considered broadband at the time). Measures for rural expansion The desire to accelerate broadband facilities into rural areas is the added driving force that makes a national broadband policy relevant to UAS policy.

The possibilities for financing broadband infrastructure to reach beyond the market include:

- The use of government finance as direct investment through public-private partnerships (PPPs);
- The use of frequency auction receipts by government to finance open-access national broadband networks, managed by an independent management company; and
- The use of UASF resources as a smart subsidy under competitive tendering for supply of infrastructure.

However, as noted above, a broadband policy typically includes several other measures designed to reduce costs and prices, stimulate the use of enhanced services, and give incentives to service providers. Thus, a UAS policy can complement a national broadband policy. Broadband expansion to rural areas is only usefully included within a UAS policy if the fundamental barriers to its deployment – regulatory, commercial and demand based - are addressed at the higher level of a national broadband policy that deals with creating an enabling environment (see also Section 2 on Sector Reform).

Reference Documents

- [Building Broadband: Strategies and Policies for the Developing World](#)
- [Toward universal access to broadband in Australia: a case study](#)
- [Universal Access & Service \(UAS\) and Broadband Development](#)

4.4.1.4 INTEGRATED OR SEPARATE UAS POLICY

There are three possible scenarios for a universal access and service (UAS) policy document:

- The UAS policy is incorporated within either the communications or ICT policy and UAS concepts and objectives are well fleshed out;
- The UAS policy is a separate policy document where the communications or ICT policy pre-exists but contains only brief references that require expansion; or
- The UAS policy is formulated as a stand-alone policy but written into regulations, giving greater force and details to the more general UAS references contained in a communications or ICT policy.

Any government in the process of renewing its communications or national ICT policy has the option to integrate the UAS policy into it. Helpful considerations in deciding whether this is desirable or not, might include:

- Are there political considerations which might make it desirable to have a stand-alone, prominent UAS policy;
- How large an issue is UAS? If a large part of the population and country is already served, UAS might not need a separate policy and can be sufficiently addressed within the communications or national ICT policy with the help of regulation;
- How long is the UAS policy document? A long UAS policy might justify a separate policy document; and
- How well defined is the UAS funding mechanism?

In some cases, even if the first three conditions favour incorporating UAS into the main sector policy, the fourth, funding, is often sufficiently crucial to justify a separate UAS policy. Saudi Arabia and Pakistan are good examples of countries where the UAS policy is almost wholly focussed on the objectives and practices regarding the UAS Fund. These policies are

provided in the reference documents, The Universal Access and Service Policy and Universal Service Fund Policy. Alternatively, UAS funding mechanisms can be implemented through special regulations. Nevertheless, it is possible that a new UAS policy and regulation may require changes in legislation, discussed in [Section 4.3](#).

Reference Documents

- [The Universal Access and Service Policy](#)
- [Universal Service Fund Policy](#)

4.4.1.5 UAS INSTITUTIONAL FRAMEWORK

Related to the questions surrounding where to locate a universal access and service (UAS) policy, are the following questions:

- Who should develop and draft UAS policy; and
- Who implements UAS policy?

Who should develop and draft UAS policy? Typically, a UAS policy is developed by the ministry responsible for communications (or in countries without a ministry by the entity responsible for communications), often with significant input or even responsibility for drafting by the regulator. That ministry might of course be constituted in one of several ways:

- Telecommunications;
- Electronic communications (including broadcasting and other media);
- Information and Communications Technology (or Communications and Information Technology)
- Infrastructure, including transportation;
- Combined with industry or science and technology; or
- Combined with another sector such as economic affairs.

Ministries other than the one responsible for telecommunications and ICT (e.g., education, science and technology, economic planning, finance, municipal and local government) are also usually considered to be stakeholders. For example, one or more might have a seat on the Board of the Universal Access and Service Fund (UASF). However, their involvement in the UAS policy development and drafting is usually one of contribution to a consultation process rather than as an actual sponsor of the policy. Consultation is strongly recommended as a part of UAS policy development. The telecommunications and ICT industry, as well as non-government organizations (NGOs), should also be part of the UAS consultation process, as discussed in Section 4.3.6. Who implements UAS policy? UAS policy may be implemented by the country's National Regulatory Authority (NRA), the ministry responsible for telecommunications and ICT, or an independent agency established to manage and administer the UASF. Each is considered below. Regulator Many countries opt to have the independent NRA responsible. This is a sound approach for many developing countries because:

- The regulator typically has the required industry sector expertise, and skilled technical, economic and financial staff;
- The regulator has a degree of independence and is perceived to be one step removed from politics; and
- The regulator has established relationship and credibility with industry that is often the main partner in implementing UAS policy.

There is a trend towards multi-sector regulation, including broadcasting. Under this scenario, the same reasons apply for it being responsible for UAS implementation. Ministry In a number of countries, the ministry responsible for communications implements UAS policy (e.g., Colombia, Guatemala, India where the ministry manages the UASF). This has the apparent advantage that the agency responsible for policy is taking responsibility to carry it out. However, the main disadvantage is that since the UAS policies sometimes include special financing instruments (e.g. a UASF) for which the main contributors are the industry (either through a levy or use of frequency receipts), government is not perceived as being far enough removed to be an independent administrator of the finances, especially if the government has any ownership interest in the industry. Operators may view the additional collection of a UAS levy by a government ministry as representing another form of taxation, or they may perceive that the funds could be too easily taken into the general budget account. On balance, international practice indicates that government as UASF administrator is not the best approach. Independent UAS Agency A few countries have opted to establish a separate agency. South Africa [1], Pakistan [2], Ghana [3] as well as the United States and Canada have established separate UAS agencies. Peru and Nigeria have independent banks or trusts as

the financial managers for a UASF, even though the regulator in Nigeria has the planning and secretariat role while the Peruvian fund is under the Ministry for Transport and Communications. While a completely separate agency elevates the status of universal access and service and creates at least the appearance of even greater independence, it comes at a higher cost as well as with increased complexities of co-ordination. The Practice Note Table of Ministries, Policies and UAS/UASF Executing Agencies provides a tabular summary of the practice in this regard for a representative sample of countries.

Practice Notes

- [Table of Ministries, Policies and UAS/UASF Executing Agencies](#)

4.4.1.6 BASIC STRUCTURE AND KEY PRINCIPLES OF UAS POLICY

Whether it is a fully integrated policy document or is limited mainly to the financing aspect of universal access and service (UAS), a UAS policy should adhere to policy formulation standards, processes and formats. Although these may be unique to each individual country, as a general guide the following elements are usefully addressed in the policy. The structure of existing UAS policies do vary quite substantially. A suggested general outline of main sections, which reflects best practice for policy formulation, is as follows:

- Introduction & background;
- Status of the telecommunications and ICT sector;
- Vision, policy direction and objectives;
- (Optional) Key challenges and barriers;
- Strategic mechanisms for the implementation and funding of UAS;
- Implementation arrangements;
- Principles of operation of the chosen instrument(s), for example
 - Universal Access and Service Fund (UASF);
 - Mandatory service obligations issued with new licences;
 - Competing for subsidies;
 - Regional operators;
 - Infrastructure sharing;
 - Etc.
- Monitoring, evaluation and review.

This outline is expanded in Practice Note *Model outline for a UAS policy* which includes features found in most countries' UAS policies and which suggests a general standard for policy structure. Because of the options available and varying context from country to country, any outline used as a model has some overlapping or country-specific content which can be eliminated, adapted or relocated elsewhere in the document. In terms of policy approach and strategies, a balance is required between providing policy direction and guidance while allowing some flexibility during implementation, i.e., during the design of the UAS programme, targets and schedules. It is helpful to formulate core principles and values within the policy, while the aspects related to execution and targeting of these principles and values remain flexible. An example of principles that are considered best practice is described in the Practice Note *Key principles and approach to UAS policy implementation*.

Practice Notes

- [Key Principles and approach to UASF policy implementation](#)
- [Model Outline for a UAS Policy](#)

4.4.2 UNIVERSAL ACCESS AND SERVICE POLICY DEVELOPMENT

Developing a universal access and service (UAS) policy generally begins with these essential questions:

- Who is the lead ministry or entity developing the UAS policy (see [Section 4.1.3](#));
- What is the main purpose for developing the UAS policy? (e.g., social harmony/ regional balance; economic

growth; global competitiveness; reduction in rural to urban migration; poverty reduction); and

- What are the UAS aspirations (e.g., there can be different emphases on telephony, Internet and broadband – while all three might be desired, the main focus could be any of them).

After determining the scope and primary concepts of the UAS policy, there are several stages and procedural elements involved in developing the policy, which are described in this section:

- Sector review – establishing the current status quo, barriers to growth, potential solutions and UAS strategic options ([Section 4.2.1](#));
- Policy formulation – setting specific objectives, time-bound targets and strategies to achieve those goals ([Section 4.2.2](#));
- Regulatory measures – their priority over other government interventions and their ability to reduce costs of implementing the UAS policy ([Section 4.2.3](#));
- Financial analysis – identifying the required financial resources to implement the policy ([Section 4.2.4](#));
- Economic appraisal of UAS options - using strategic socio-economic considerations for policy development, and micro-economic analysis to decide on priorities and sequence within a UAS programme ([Section 4.2.5](#)); and
- Consultation – several stages of consultation with various stakeholder groups to solicit input, feedback and develop broad buy-in ([Section 4.2.6](#)).

Policy development is likely to require a few iterations. For example, input from consultation can result in adjustments or changes to the draft UAS policy before it is finalised.

Reference Documents

- [Universal Access & Service \(UAS\) and Broadband Development](#)

4.4.2.1 SECTOR REVIEW AND MARKET ANALYSIS

Formulating a universal access and service (UAS) policy begins with a realistic assessment of the current status of the sector's services reach, in order to be able to chart a roadmap of where the country wants to go in regards to ICT and UAS. A key questions is:

- What is the country's status quo in terms of universal access and what progress has been made towards universal service? In particular, what areas and population groups do not have access to ICT services?

A number of activities and methodologies can be used to provide the underlying data and analysis necessary for the development of UAS policy. These are as follows:

- Background study and database: This is a brief desk study that summarizes the geographic, demographic, socio-economic and cultural composition of the country. Ideally, the data base and analysis should be broken down to the smallest local administrative level for which it is feasible to collect data. This is often at the district level, but in populous countries, or ones where data is freely available, data to sub-district level is desirable. Household income and expenditure data is especially useful; details of the desk study are discussed in [Section 7.1.1](#).
- Telecoms and ICT sector review: This encompasses an inventory of existing infrastructure and services around the country, but also includes a review of the policy and regulatory environment for ICT, and possibly even the investment and business environment. Usually, the best approach is to interview the ICT industry players directly who will provide data on current network services and reach, as well as future plans, views on market trends, and their opinions on universal access (UA), rural communications and progression towards universal service (US).
- Coverage and GIS maps: The information gathered from reviews and studies can be represented with coverage and GIS maps. However, because the ICT market is evolving rapidly, data can quickly be out of date. The focus of the ICT sector review should be to enable a policy formulation based on an understanding of the current situation and near future developments; it does not require absolute accuracy. It is nevertheless, helpful to set up a process and structure that allows for regular reviews (e.g., annually) of the ICT sector and of UAS related data.
- International review: Policy makers benefit from researching and discussing current best practice and trends

for UAS, especially of countries that have comparable characteristics and challenges.

- Demand studies: These are particularly valuable as they gather information from the intended beneficiaries of the UAS policy in regards to their actual UAS needs. By investigating affordability, crucial information is gathered to model the subsidy requirements for various UAS objectives. Details are discussed in Section 5.2.

The above approaches and methodologies provide a good foundation for developing UAS strategy and policy. The analyses will highlight required targets, strategies and solutions to achieve UA and a country's progress towards US.

4.4.2.2 POLICY FORMULATION

After the sector review process has provided a foundation of data, analysis and initial viewpoints from various stakeholders, decisions on the following key questions need to be made:

- Which services (e.g., telephony, Internet, broadband but also directory assistance and access to emergency numbers) should be included into the universal access and service scope (see also [Section 1.1.5](#) and [Section 1.1.4](#));
- Which specific **targets** for each of the services should be set;
- What **main groups** should be targeted (e.g., rural population, urban poor, people living in socio-economic depressed areas);
- What other **special targets** are advisable e.g., schools, libraries, hospitals, etc.(see also [Section 1.1.2](#) and [Section 1.1.7](#));
- What **timeframe** should be set for certain targets to be achieved and what timeframe will the UAS policy cover;
- What **approach** should be used and which **strategies** employed, covering
 - Estimating cost of achieving set targets and whether public funding (subsidies) is required;
 - Who will provide the funding and how is it collected;
 - Who will deliver the services (e.g., operators and service providers, NGOs, entrepreneurs, etc.); and
 - How will those entities be selected.
- **Future proofing:** How will the policy be adjusted to reflect market changes over time?
- **Who** is going to take the lead in the implementation (including coordination and monitoring) of the UAS policy?

The following table [1] provides an illustrative example, comparing the status of services and UAS targets in different types and sizes of localities.

Geographical category	Current status and target dates								
	Existing fixed or mobile network reach	UA Telephony (fixed or mobile) 100% public access		US Telephony Hshid penetration to reach above 75%		Internet Point of Presence & Public Access Centre (one per community)		Internet access to all schools	
		Current status	Target date	Current Typical	Target date	Current status	Target date	Current status	Target date
Urban centres	100%	100%	n/a	67%	2009	n/a	n/a	80%	2009
District Centres	100%	100%	n/a	50%	2010	50%	2010	30%	2010
Villages above 5,000	90%	80%	2009	33%	2011	20%	2012	10%	2012
Villages above 2,500	80%	70%	2010	25%	2011	10%	2014	5%	2014
Villages above 1,000	75%	60%	2010	20%	2012	None	2016	2%	2015
Villages above 500	60%	40%	2011	20%	2013	None	2020	None	n/a
Villages above 250	50%	30%	2012	Low	2016	None	2021	None	n/a

Source: ITU-infoDev ICT Regulation Toolkit – UAS Module

The elaboration of urban and rural locality classifications and the population-specific targets typically are established through the development of a strategic programme. A simple way of stating policy objectives is illustrated by the UAS Policy of Saudi Arabia, which sets overall targets for UA and US within specified timeframes. These are as follows [2]:

Service	Target dates from commencement of UAS Programme	
	Universal Access [Public access at all mandatory service locations]	Universal Service [Available private service within 5 days of demanding in all mandatory service locations]
Telephony	3 years	5 years
Internet	5 years	7 years

Source: ITU-infoDev ICT Regulation Toolkit – UAS Module

International and regional goals and in-country focus Internationally relevant for universal access and service (UAS) are the World Summit on the Information Society (WSIS) objectives, and the Millennium Development Goals (MDG), discussed in Section 1.5, as they allow countries to develop their own UAS goals in context with global aspirations. Also, regional organisations and their formulated goals for UAS might be helpful benchmarks for countries. For example, the association of regulators of information and communications for Eastern and Southern Africa has developed policy guidelines for UAS. The Connect Africa Summit that took place in Rwanda in 2007 adopted five goals to bridge the digital divide in Africa. The ASEAN countries have a working group on universal access and the digital divide and adopted a declaration on Enhancing Universal Access of ICT Services in ASEAN in 2007. The Caribbean community (CARICOM) has also developed a joint agenda for connectivity that includes UAS plans and a Universal Access and Service Fund (UASF) if needed. [3]

However, UAS goals need to essentially be tailored carefully for each country, meet the local requirements and be feasible. Also, in many countries, UAS targets ultimately need to be presented in detail since the network reach and current service status may vary significantly from region to region within a country and thus programme development and targets may need to be set regionally. Having said this, UAS policy itself will usually be limited to making general statements about regional equality, ubiquity and reaching rural areas, in addition to the macro targets as given in the previous example. Strategic approaches In addition to targeting universal access to specific services and increased private service, some UAS policies may include complementary measures or objectives, such as ICT training, content development, and Internet national traffic switching, which are designed to improve the UAS environment and user capacity. The following example from Uganda’s Rural Communications Development Policy shows a carefully balanced strategy that has proven to be successful [4]:

Expenditure activities	Proportion of subsidy investment (Per cent)
Public telephony infrastructure	40
Technical enhancement packages (e.g., mounting pole, transmission line and antenna) to enable simple handsets to operate as public access telephones in weak signal areas	3
Internet POPs and wireless access in all district centres	12
Internet Exchange Point (IXP) initiative	1
Internet access and telecentre / ICT projects for vanguard institutions (One per district)	10
ICT start-ups and training (including support of ICT in one school per district)	20
Rural post franchise support costs	8
ICT training capacity investment	3
ICT awareness and ICT content creation projects	3
Total	100

Source: ITU-infoDev ICT Regulation Toolkit – UAS Module

Specific measures to improve penetration and reach universal service The strong position of mobile communications in developing countries has enabled policymakers to include penetration and universal service targets first for main urban centres, then into smaller regional towns or district centres and smaller communities in a progressive fashion. Guidelines for universal service elements of the UAS policy, targeting households in areas with strong network presence [5] may be as follows:

- A private phone (fixed or mobile), connected to a network service with a selection of tariff options and, in particular, options of usage affordable [6] to households in the lowest decile (10 per cent) of income of the population;
- The service should include access to at least basic data service, with the minimum acceptable speeds determined

from time to time by the regulator;

- Information and customer support services should be provided by the operator free of charge;
- The service should include directory service, accessible by dialing a publicized number and provision of information on telephone numbers of (at a minimum) government, businesses and social infrastructure offices connected to the fixed line network. Mobile numbers should also be included where made available by the listed entities;
- Services should provide free phone calls to the area's emergency services (police, fire and health) in the caller's area; and
- Services should advertise options and features to enable customers with sight and hearing impairments and other disabilities to access and make use of the service.

In addition, rural penetration targets should be published. For example, in 2006 Pakistan set an overall target of achieving rural penetration of 6 per cent of its population by 2010, in addition to the targeting of underserved regions for network expansion and specific village-level telephony and Internet UA service targets [7]. Several countries, notably Algeria, Egypt, Tunisia and Nigeria, have national programmes and initiatives to boost PC penetration. The main approach is to negotiate discounts for the price of the PCs used in the programmes, and offering low interest loans and pay-back schemes for households and other beneficiaries to be able to purchase a PC. The Practice Note Programmes to boost household PC penetration summarises the programmes of the above mentioned countries. Future proofing Services and targets need to be selected carefully. This is a challenge, as targets need to be feasible, as well as forward-looking and future-proof, so that they are still valid and appropriate during the lifetime of the policy and are not superseded by market developments. Most policies are designed for a five to ten year horizon, while a UAS programme sets targets for one to three years. The policy itself should allow for a process of review and update so that it may adjust targets.

Practice Notes

- [Programmes to boost household PC penetration](#)

Reference Documents

- [Funding and Implementing Universal Access: Innovation and Experience from Uganda](#)
- [Output-based aid in Uganda: Bringing Communication Services to Rural Areas](#)

4.4.2.3 THE PRIORITY OF REGULATORY MEASURES

As discussed in [Section 1.3.3](#), best practice addresses the market efficiency gap first through improved sector reform and regulation, and optimization of the investment and business environment and prioritizes the enabling of commercial solutions. This reduces the financing required for a universal access and service (UAS) programme that implements a UAS policy. Because of the rapid development of the telecommunications and ICT industry, commercial solutions may be more sustainable and arrive faster than policy makers are able to anticipate when designing policy. Policy makers and regulators need to be careful not to waste time and resources planning interventions for areas and basic services that would be better served without intervention. Before implementing interventions involving special finance, for example from operator levies, government budget or frequency or licence auction receipts, for universal access and service, it is best to focus on:

- **Regulatory measures** that create an environment more conducive to competitive network expansion or infrastructure sharing;
- **Fiscal measures** that will make communications service and hardware more affordable to low-income users; and
- **Enabling activities**, such as promotion, advertisement and capacity building that highlight the opportunities available to people, communities and organizations to take advantage of the services offered in the competitive market.

It is conceivable that a UAS policy sets objectives and asks the industry to achieve them voluntarily and will only implement special measures such as a UASF or new licences with UAS requirements, for example, if the market makes insufficient progress towards achieving the UAS objectives. In summary, minimizing the cost of the UAS policy and programme is achieved through the removal of regulatory and other barriers to the commercial expansion of the market. This in turn reduces the portion of population and geographical areas that must be supported financially. UAS policies can include the objective of removing regulatory barriers to market expansion and efficiency in order to improve the provision of UAS.

4.4.2.4 FINANCIAL CONSIDERATIONS AND ANALYSIS

Financial analysis plays a role in universal access and service (UAS) policy development and implementation. Its role in policy development is considered in this section. A fuller treatment of financing universal access and service is provided in [Chapter 5](#). In the past, financial considerations related to UAS were often concerned with calculating the costs of UAS provision, using methodologies for calculating net cost (capital and operating costs minus income) and accounting for intangible benefits of a universal service provider. Traditional financing approaches such as cross-subsidization and access deficit charges are replaced by more competitive mechanisms that leverage private investments and sometimes involve universal access and service funds (UASF), where finance is largely provided by the sector itself. With competitive mechanisms, detailed cost calculating is no longer required, and replaced by cost modeling to establish a maximum subsidy ceiling for operators to provide certain UAS services; UAS services are specified including details such as a maximum retail price and quality of service standards. The actual subsidy costs (which in practice might be often lower than the ceiling set) are then determined through a competitive process (see also [Section 3.1](#), [3.2](#) and [Section 7](#) of this Module). The three main questions related to finance in UAS policy are:

- What is a financially feasible UAS policy, i.e., what is the limit?
- Where should the financial resources for a UAS programme come from; and
- How much finance is required to implement the desired UAS policy and programme strategy?

Other, more detailed questions such as who is responsible for managing the available finance, and rules and mechanism for disbursing funds and their effectiveness are discussed in [Chapter 5](#) and [7](#) of this UAS Module. Realistic targets Policy development needs to consider the desired outcome and the financial resources available in order to arrive at a feasible strategy. Countries benefit from having realistic objectives and targets that can be financed without strain, and which they have the capacity to manage. If policy makers set UAS goals and targets, which for example are so ambitious that to achieve them, would cost perhaps 5 per cent or more of the sector's annual revenues to subsidize, it might be unrealistic to set these goals. But a programme that costs only 1 per cent of the sector's revenues is more realistic, as long as the programme administrator (e.g., the UASF) has the necessary management and staff to administer the projects. Sources of UAS finance UAS programmes are generally financed by the following sources:

- Government general budget; in a minority of cases, including one of the first funds, Chile's Fondo de Desarrollo de las Telecomunicaciones;
- An annual regulatory levy, as a percentage of annual revenue, on all or certain classes of licensed operators;
- Various other regulatory sources such as the proceeds of license competitions, frequency spectrum auctions and fees; and
- Once-only contributions from government, financed by loans or grants from international donors such as the World Bank or other international aid institutions, contributing seed finance to assist UASF start-up in the early years.

The majority of UASFs are financed through annual operator levies, although the legal instruments (e.g., the Communications Law) establishing the fund might typically name all potential sources, or be worded in an open fashion to allow for all possible sources. As noted in [Section 3.2.2](#), operator levies typically range from less than 1 per cent of operator revenues (e.g., in South Africa) to 5 per cent in India and Colombia and 6 per cent on certain qualifying revenues in Malaysia. UASFs are discussed in-depth also in [Section 3.2](#), [5.2](#) and [5.3](#).

However, a stronger case could be made that the funding should, if possible, be more balanced between the first three financing sources. For example Guatemala's FONDETEL uses part of the proceeds of radio frequency auctions and licence competitions to finance UAS programmes. Auction proceeds are paid by various industry players for a national resource. It typically is simply added to the government budget, but it might be more appropriate to use this money particularly for ICT development, such as to fund UAS or special measures for broadband development (e.g. increasing PC ownership or equipping schools with computer labs and broadband access). As described in [Section 5.4](#), a large number of other sources, including international donors, non-government and corporate, are also involved in financing and supporting telecommunications public access, and ICT projects and applications. These often encompass applications that cut across several sectors of the economy, from education to commerce, health and governance. These investments often contribute most to awareness, market stimulation and capacity building, and so support progress towards UAS. Finance required to implement UAS programmes Most often required finance for a UAS programme is estimated in the context of a UASF. However, countries without a UASF might also find it helpful to review the considerations below to determine appropriate operator levies for a UASF. There are two ways to estimate the appropriate level of UASF contributions for each country. These are as follows:

- **Policy-driven approach** – Determine what scale of subsidy programme would be required to meet the country's policy objectives and time-bound universal access and service (US) targets. The total cost and subsidy

estimates are compared to the total sector revenues. The percentage of total sector gross or net revenues calculated by this method becomes the high level estimate; or

- **Market-driven approach** – Determine from a survey or assessment of operator and other stakeholder opinions, as well as from international benchmarks, what operators would accept or could afford as a reasonable contribution. Then develop the UASF programme to match this.

For many reasons, a hybrid and iteration of these methods recommends itself. The main reasons are:

- Levies based solely on a top down approach may be a political wish list which is not rooted in the reality of what can be achieved, or should be attempted, in a given time frame; However, if the government is willing to add to the finance from the sector or use frequency and licence auction proceeds, a more ambitious programme could be implemented.
- The top down approach with a large and ambitious programme could require a larger than realistic bureaucracy, in the form of UASF staff and programme management, which is costly and is not supportable by the industry alone; and
- The initial estimate of programme cost can be quickly outdated due to the sector's fast pace of development, resulting in much less UASF subsidy required than first thought.

International experience of UASFs indicates that there are no developing countries which have been able to disburse more than 2 per cent of sector revenues in their UASF programme. This might be a helpful guide for countries to size their own UAS programme, even if they do not choose to use a UASF. [Section 3.2.4](#) illustrates that in the major countries that levied 5 or 6 per cent, despite having established sophisticated UASF organizations, less than half of the revenues collected have been redistributed to the sector through subsidies. [Section 5.3](#) discusses challenges of disbursing funds as well as best practice of efficient fund management.

4.4.2.5 ECONOMIC APPRAISAL OF UAS OPTIONS

Detailed economic analysis is typically undertaken at the stage of universal access and service (UAS) programme development, often to determine project priorities, and is less important at the UAS policy development stage. However, broad economic considerations are important in the policy formulation. As discussed in [Chapter 1](#), countries develop UAS policies based on the premise that access to basic and advanced telecommunications and ICT services have a wide-ranging socio-economic rationale. This recognizes the importance of telephony and ICTs as enablers of growth and equality in the country, and competitiveness on the world stage. However, some projects may deliver different types and levels of benefit more than others, or deliver the benefit in different parts of the country, all of which are reasons why UAS programme and project selections need to be made carefully and priorities set between the available options. UAS implementing agencies need to consider and analyse the economic impact and relative value of the UAS strategic options, programmes or projects, make selections or set priorities in the context of national economic growth, developmental impact (including poverty alleviation), commercial viability, regional balance and related economic concerns. Key factors that are considered in the implementation stage of UAS policy include:

- The total population reached by each project or potential investment;
- The expected impact and poverty reduction effects, as compared to the vision and objectives of the policy;
- The regional benefits and equalization in socio-economic terms;
- The commercial viability and sustainability of a programme;
- Leveraging of private participation in the UAS programme;
- The subsidy cost per beneficiary; and
- The benefit to cost ratio or Social Net Present Value.

These factors and the economic analysis methodologies used to evaluate them and to set programme and project priorities, are described in [Chapter 6](#).

4.4.2.6 CONSULTATION

Consultation is a significant part of all policy and regulation development and is considered best practice in universal access and service (UAS) policy development as well. There are several stakeholders that should be consulted during the development of a UAS policy. These potential contributors are:

- **Government ministries** that have a close interest in UAS and need to be involved. Typically, these are the

ministries responsible for economic affairs, agriculture and rural development, science and technology, education, health and finance. For example, part of the UAS policy could encompass fiscal measures (e.g., reduction or elimination of important duties on UAS related technology) that require support and buy-in from the finance ministry. Another example is collaboration with the Ministry of Education to ensure that schools targeted for Internet access under the UAS policy are well prepared for the new opportunities through ICT training for teachers, computer labs and ICT teaching material.

- Industry – typically, communications operators and service providers are the key partners in implementing the UAS policy, providing the UAS services, and often are the main contributors to a UASF. Strategic decisions concerning the proposed UAS targets, required industry levy, available technologies, and the use and management of a Universal Access and Service Fund (UASF) if chosen, including the subsidy strategy, cannot be made in isolation. It is best to hold industry consultations on objectives and targets early in the planning process. The UAS policy development process is also an opportunity for regulators and industry to dialogue on the functioning of the market and how regulation can help to provide UAS commercially.
- Parliament – there may be a special committee that focuses on communications, or at least one or several parliamentarians, including opposition members, who are interested. The inclusion of opposition members on committees might increase the chances that any required amendments to the law are passed faster.
- Beneficiaries of the UAS policy – usually these cannot easily be consulted directly (other than through a field demand study). Thus various entities representing the beneficiaries in a broader sense could be consulted, such as:
 - Non-government organizations (NGOs) that work with the disadvantaged and poor;
 - Civil society organizations;
 - Local government representatives in under-served areas;
 - Consumer protection organizations; and
 - Organizations representing a large population group in underserved areas such as farmers' organizations, tea and coffee growers, etc.

Stakeholder involvement is crucial for the support of the UAS policy and its success. If a UASF is chosen to be the mechanism that will finance the UAS policy implementation, then stakeholder consultation is important for establishing credibility for the fund and its management. If new licences are to be issued (e.g. service- and technology-neutral ones), and used as the main UAS instrument by attaching UAS requirements, as has been done successfully in South Africa and Brazil, then existing licencees need to be involved to strike a feasible balance between the new licencees' financial benefits for operators and the cost of attached UAS requirements. Consultation and involvement ensures that industry will buy-in to the new programme and will voluntarily contribute the finances required to support it. Consultations can be made through public workshops, smaller working groups or a more formal consultation process where a consultation paper is produced, to which written inputs are requested. Consultation with stakeholders varies in its intensity – with some stakeholders, consultations serve as a mechanism for keeping stakeholders informed and up to date, while other stakeholders (typically the industry) need to be involved through more active discussions and working groups. Also, there are different stages of when to consult – some stakeholders provide valuable input at the beginning of the process while others may have more to contribute once a specific UAS policy proposal, that is refined through the stakeholder input, is presented to them. Each country has to determine what mix of consultation is most suitable to the process, but it is important that the following recommendations be taken into consideration. A formal public consultation process is helpful close to the end of the policy's development, but before the draft UAS policy is finalized. This allows the industry and other stakeholders to respond to proposed elements of the UAS policy. This consultation can include the proposed financing mechanism, proposed targets, and the management structure of the proposed instruments to achieve UAS (such as a UASF). It is best practice to share demand study data with industry, from areas where UAS projects are proposed, so that maximum knowledge is available ahead of any competitive tendering. Operators will typically conduct their own demand assessments as well. In some consultations, different views regarding demand, customer affordability, construction and operating costs will be presented. This dialogue should be part of a healthy ongoing consultation or working group process, since government and industry are partners in how to reach marginal and remote areas, and will determine what finances will be required.

4.4.3 LEGAL MODIFICATIONS AND REGULATIONS

Once a universal access and service (UAS) policy is developed, legal modifications and further regulations are often required in order to implement the policy. Typical issues that need to be addressed are the following:

- The legal basis for the chosen financing instrument: collecting a UAS levy from operators and service providers

(licensees), using frequency and licence auctions proceeds to finance UAS, developing a new licensing regime with attached UAS requirements, or infrastructure sharing, or any other chosen instrument;

- The legal instruments to apply selected financing or implementation mechanisms (e.g., set up of a Universal Access and Service Fund (UASF), authorize its management and fund disbursement, new licensing regimes and draft licences);
- Detailed guidelines on UAS policy implementation, UASF objectives or objectives of any other chosen UAS strategy; and
- Detailed regulations, guidelines and principles of the UASF management and operation, if a UASF was chosen.

The precise amount of required legal revision or additional regulation may vary significantly from country to country depending on how much detail might already be contained in existing law, and on the country's legal tradition. The range of options and minimum requirements are provided in this section.

4.4.3.1 LEGAL AMENDMENTS

As discussed in [Section 4.1.2](#) elements of a universal access and service (UAS) policy can be contained in a telecommunications law or other related law, in related policies (e.g. ICT, broadband, IT, etc) and in implementations strategies and detailed regulations, in addition to the UAS policy document itself. It is possible that amendments to existing laws may be required when developing and implementing a UAS policy, or in spelling out the details of a UAS provision that already has some legal basis or is mentioned in policy. The following makes no distinction between countries that may have some previous mention of universal access or universal service (albeit inadequate) and those that do not. In both cases, legal amendments or new legal instruments could be required to enact a new or updated UAS policy, such as to establish or operationalize a UASF, design a new licensing regime, create infrastructure sharing legislation, develop specific public-private-partnership projects, etc. Required amendments might have to comprise or address the following:

- Legal concept paper to describe the new policy environment or objectives, and the legal instrument(s) or revisions to be enacted to institute or revise the provisions for UAS (or specific terms chosen by the government for these concepts). This paper is typically required to precede or accompany the new legal drafts;
- Definitions of UAS. Ideally the law should give the regulator (or implementing agency for the UAS policy) the power to revise the UAS definition from time to time in terms of what services are included, etc., based on certain principles;
- Additions to the power of the regulator, or chosen implementing agency, to implement the UAS policy;
- The legal basis for the chosen financing instrument: collecting a UAS levy from operators and service providers (licensees), using frequency and licence auctions proceeds to finance UAS, developing a new licensing regime with attached UAS requirements, or infrastructure sharing, or any other chosen instrument; and
- If a UASF is to be established, its sources of funding and its intended use, how it is constituted, managed and administered and who should be accountable for it.

Depending on the legal customs and traditions of a country, these legal amendments might be quite general, or conversely, specific and detailed. If the law is more general, many of the specifics can be articulated in more detail within regulations. The advantage of working with regulations rather than detailed and specific law is that regulations can be more readily modified, as they can be passed by a line ministry or the cabinet, while laws typically have to pass Parliament. Thus, key principles, crucial elements and approaches are usually placed into the law to ensure that the UAS policy direction and intention is not fundamentally changed. Smaller implementation details go into a specific regulation, and can be modified if experience shows there is need to vary the approach. While the law ideally contains the overall objective of UAS, specific targets, procedures and timeframes are best not included, as these can change over time and might need to be reviewed and modified periodically. Specific targets and timeframes are better contained in the UAS policy and, in more detail, in an implementation strategy document, sometimes also called master plan. In summary, assuming a legal revision is required to enact or change a UAS policy and establish the chosen financing or implementation instrument, the requirement for legal change is usually two-fold, namely 1) a legal amendment to add or revise the scope of the UAS policy, and 2) the legal instrument to establish and grant authority to the chosen financing and implementation mechanism.

4.4.3.2 DETAILED REGULATIONS

Detailed regulations are typically required, irrespective of whether a new or revised law is necessary, for the implementation of a universal access and service (UAS) policy. The following describes the issues which must be covered by regulatory documentation, once the design of the UAS policy has been decided upon:

- Detailed network and service objectives for the regulator or agency to implement the UAS policy;
- Detailed institutional implementation arrangements such as establishing a specific UAS department or directorate within the regulator, or establishing a separate implementing agency;
- The functions to be fulfilled in developing a detailed UAS programme– e.g., defining and zoning areas of the country to determine those which are served, unserved, commercially viable, non-viable, setting strategy, determining priorities, designing projects, monitoring outcomes, etc.;
- Guidelines, principles and procedures of the UAS implementation, any supervisory or monitoring board, or consultative committee (whichever style of direction is chosen);
- Responsibilities such as UAS programme approval, official sign-off on UAS disbursements, and other detailed accountabilities;
- Details on plans for UAS programme annual reports, their implementation, success and challenges, progress towards the UAS objectives and their public dissemination;
- Provisions for periodic reviews of the UAS policy, objectives, strategies and the regulation in case changes in the market or policy-environment require updates.

In case a Universal Access and Service Fund (UASF) is to be established, the following additional regulations are typically required:

- Detailed rules on process and eligibility for UASF disbursement;
- Specific financial regulations, including the holding and investment of UASF funds, eligible costs and expenses, limits on operational and administrative costs, and financial control, reporting and independent auditing; and
- Detailed accounting rules for operators in order to establish the correct UASF licensee levy.

Section 5.3 Institutional issues: Managing and organizing a UASF describes in detail the various issues, options and requirements from a financial and organizational perspective. Depending on the country’s context and legal and regulatory traditions, the above details could also be contained in any of the following regulatory documents, which could in effect be equivalent except in name. These documents are:

- UASF administrative rules and guidelines;
- UASF executive guidelines; and
- UASF manual of operating procedures.

Typically, rules and guidelines are binding regulatory documents, though as stated in the previous section, they can be revised through regulatory decisions or the preparation of succeeding regulations. A manual might have considerable overlap with some of the contents of regulations listed above, but it may be a more practical guide, containing details on staffing, selection of UAS projects for those implementing the policy and administering the fund. An example outline for this kind of document is provided in Practice Note Outline Manual of Operating Procedures.

Practice Notes

- [Outline for manual of operating procedures for UASF](#)

[Next: 4.5 Financing Universal Access and Service](#) →

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