République du Cameroun

***

Paix – Travail – Patrie

Republic of Cameroon

***

Peace – Work – Fatherland

NATIONAL POLICY FOR THE DEVELOPMENT OF INFORMATION AND COMMUNICATION TECHNOLOGIES

September 2007

National Agency for Information and Communication Technologies
(NAICT)

Contents

List of Acronyms

WSIS	World Summit on the Information Society
NAICT	National Agency for Information and Communication Technologies
ICT	Information and Communication Technologies
ECA	Economic Commission for Africa
NICI	National Information and Communication Infrastructure
UNDP	United Nations Development Program
TICAD II	Second Tokyo International Conference for African Development
ITU	International Telecommunications Union
MINPOSTEL	Ministry of Post and Telecommunications
UNESCO	United Nations Education Scientific and Cultural Organisation
PRSP	Poverty Reduction Strategy Paper
HDI	Human Development Index
GDP	Gross Domestic Product
MINFI	Ministry of Finance
CRTV	Cameroon Radio Television
CAMTEL	Cameroon Mobile Telecommunications Corporation
EDI	Electronic Data Interchange
CEMAC	Economic and Monitory Commission for Africa
OHADA	Organisation for the Harmonisation of Business law in Africa
TRB	Telecommunications Regulatory Board
CENADI	National Centre for the Development of Computer Services
ADSL	Asymmetric Digital Subscriber Line
CDMA	Code-Division Multiple Access
LAN	Local Area Network
IXP	Internet Exchange Point
SIGEFI	Integrated System for the Management of Public Finances
SIGIPES	Computerised Management of State Personnel and Salaries
SME	Small and Medium seize Enterprise
CAMPOST	Cameroon Postal Agency
CTO	Commonwealth Telecommunications Organisation
ITSO	International Telecommunications Satellite Organisation
IMSO	International Mobile Satellite Organisation
NGO	Non Governmental Organisation
COPTAC	Conference of Postal and Telecommunications Administrations of Central Africa
ARTAC	Association of Telecommunications Regulators of Central Africa
VAT	Value Added Tax
SMI	Small and Medium seize Industries
HIPC	Highly Indebted Poor Country
PIB	Public Investment Budget
MINESUP	Ministry of Higher Education
MINEFOP	Ministry of Professional and Vocational Training
MINRESI	Ministry of Scientific Research and Innovation
MINEFOPRA	Ministry of Public Service and Administrative Reforms
MINCOM	Ministry of Communication
MINATD	Ministry of Territorial Administration
MINFI	Ministry of Finance

MINEDUB	Ministry of Basic Education
MINESEC	Ministry of Secondary Education
MINJUSTICE	Ministry of Justice
ART	Telecommunication Regulatory Agency
PR	Presidency of the Republic
ELECAM	Election Cameroon
MINDEF	Ministry of Defence
MINDUH	Ministry of Urban Development
MINTRANSPORT	Ministry of Transport
DGSN	General Delegation of National Security
VSAT	Very Small Aperture Terminal
MINSANTE	Ministry of Public Health
AES SONEL	National Electricity Cooperation
MINADER	Ministry of Agriculture and Rural Development
MINEPAT,	Ministry of Post and Telecommunications
MINAS,	Ministry of Social Affair
MINCOMMERCE	Ministry of Commerce
MINCULT	Ministry of Culture
MINREX	Ministry of External Relations
MINPROFF	Ministry of Women Affair

"Our country needs generalised Internet access … to be better placed to enter the third millennium."

H.E. Paul BIYA, President of the Republic of Cameroon

INTRODUCTION

Today, there is consensus on the fact that the information society, in which ICTs constitute one of the most powerful vectors, opens entirely new opportunities for reaching higher levels of development. In fact, the capacity of ICTs to reduce a good number of traditional obstacles, especially those of time and distance, for the first time in history makes it possible to use the potential of these technologies for the benefit of millions of peoples in all corners of the world. It has thus given individuals, communities, corporate bodies and the nation at large the possibility of creating, accessing, utilising and sharing information and knowledge in a bid to achieve full potential in obtaining sustainable social and economic growth.

Developed countries are rich in information and as such can quickly adapt to changing social and economic environments, and subsequently can find opportunities to overcome social and economic challenges such as poverty and lack of adequate infrastructure.

The absence of the right policy environment for ICT development in less developed countries including Cameroon has resulted in the widening of the development and information gap between developed and underdeveloped countries, as well as between urban and rural communities in developing countries.

Information and Communication Technology is not an end in itself for Cameroon, but a powerful tool to help increase productivity, competitiveness, stimulate growth, create employment opportunities and as such improve the wellbeing of Cameroonians.

Cameroon intends to use ICTs to build a people-centred, inclusive and development-oriented information society, where its citizens can create, access, utilise and share information and knowledge in a bid to achieve sustainable social and economic growth, which is one of the preconditions for poverty reduction and hence improvement of the quality of life of Cameroonians.

Consequently, the President of the Republic, H.E. Paul Biya, strongly emphasised on November 30, 2002, that the effective emergence of an information society in Cameroon would help "strengthen unity between our peoples and combat inequalities by granting access to information and knowledge to most Cameroonians…" and, thus, "make the country better placed to enter the third millennium". He has repeatedly invited Cameroonians of all works of life to adopt and use ICTs in their daily activities in an effort to combat poverty and exclusion from the information society. It is in this light that he set the tone in his November 3, 2004 speech, when he stated inter alia, "our country needs generalised Internet access".

There have been several national initiatives aimed at stimulating the use of ICTs, as a development tool to alleviate poverty and other challenging issues. These include:

- identification of ICTs as an enabler in achieving most of the activities identified in the Poverty Reduction Strategy Paper (PRSP) in 2003;
- formulation of a sectoral strategy in the field of telecommunications and ICTs by the Ministry of Posts and Telecommunications in 2005.

Alongside these activities, several initiatives for the development and deployment of ICTs are underway within government departments in Cameroon. These include:

- the formulation of a government action plan for an information and knowledge-based society by the Ministry of Scientific Research and innovation ;
- the implementation of an ICT development programme by the Ministry of Higher Education ;

- the creation of multimedia resource centres in secondary and high schools within the Ministry of Secondary Education ;
- the implementation of the audiovisual sector liberalisation option by the Ministry of Communication ;
- the implementation of the National Governance Programme by the Prime Minister's Office ;
- the introduction of ICTs in the management of State personnel by the Ministry of the Public Service and Administrative Reform;
- the computerisation of the national identity card by the Delegation of National Security ;
- the computerisation of the electoral process by the Ministry of Territorial Administration and Decentralisation.

These national initiatives are supported by other external initiatives, such as:

- the initiative of the Economic Commission for Africa (ECA) on defining the National Information and Communication Plan (NICI Plan);
- the UNDP initiative on an ICT policy in Cameroon within the framework of the Second Tokyo International Conference for African Development (TICAD II) ;
- the International Telecommunications Union (ITU) support to the formulation of MINPOSTEL sector strategy;
- support to the development of community and rural radios by UNESCO.

Despite the positive impacts of these initiatives, the absence of broad-based consultation and coordination among various stakeholders during the formulation of these sectoral strategies and programmes of Ministries resulted in incoherent visions of the development of the ICT sector. These shortcomings prompted the development of a National ICT policy which reflects a single and coherent vision on ICT development that takes into account the convergence in technologies.

This policy is intended to implement some provisions of the Constitution, the Investment Code, education sector laws, major guidelines of the PRSP and honour commitments made by Cameroon with regards to global poverty reduction efforts (Millennium Development Goals, Education for All, Tunis Agenda for the Information Society, etc.).

These strategies take into account the government's desire to make the ICT sector a major player in promoting active and responsible citizenship. This objective is a prerequisite for the implementation of a vast ICT sector development programme. Only through such a programme can any financial support, whether national or foreign, yield investment returns and hence induce economic development of the society.

To achieve this ideal, an effective participation in the global economy requires that, countries should be connected onto the information superhighway in a bid to make information available to individuals, corporate bodies, communities and the nation at large, about any available opportunities worldwide, thereby increasing the chances of improving the quality of lives of their citizens.

Therefore this document is:

- a comprehensive framework for ICT development in line with national development objectives ;
- a framework for consultation and concerted action with private sector, civil society and development partners ;
- a framework for coordinating government action and external support, notably from the Digital Solidarity Fund;

The National Strategy for the Development of Information and Communication Technologies comes along with a National Plan that identifies all actions programmed over the reference period 2008-2015. The National Plan may be revised annually depending on changes in priorities and available financial resources. The plan:

- prioritises projects according to their impact on the country's development ;
- specifies investment budgets.

The preparation, implementation, monitoring and evaluation of the National Plan will be based on a participatory approach. However, government services, the private sector and the civil society are already involved at the highest level of the development process.

Chapter 1: GLOBAL CONTEXT OF ICT DEVELOPMENT

1.1. Demographic features

The National Institute of Statistics estimated Cameroon's population at 15,292,000. This figure will be updated when the 2006 census data becomes available, since the last census dates back to 1987. The general population density is around 33 inhabitants per km², with major disparities between and within provinces. Concerning its age structure, the population is composed principally of young people, with 45% of individuals aged below 15 years and 64% aged below 25 years. The average age of the population is about 22 years. In 2003, life expectancy was 56.5 years (that is, 54.5 years for men and 59 years for women). A sex ratio of 97 men to 100 women indicates that there are fewer men than women.

The national average birth rate gradually declined due to an increase in the number of birth control programmes that promote family planning. Therefore, the rate dropped from 41.7 ‰ (between 1987 and 1992) to 39.7 ‰ (between 1993 and 1997) and then to 38.2 ‰ (between 1998 and 2002). The mortality rate has remained generally high: 49 ‰ at present, notably with the effects of HIV/AIDS. Concerning infant mortality (that is, for children aged 0-4 years), the number of deaths rose from 126 to 151 per 1000. Moreover, maternal mortality has remained high, with about 430 deaths for every 100,000 births.

Cameroon is experiencing rapid urbanisation due mainly to rural exodus. Available statistics indicate that almost half of the country's population lives in towns. The average population growth rate is 5% in urban areas, with Yaounde and Douala recording 7% and 6.4%, respectively. Forecasts indicate that the population of these two cities will double by 2015.

United Nations forecasts, based on an analysis of available household survey data, indicate that Cameroon is in a demographic transition phase: the annual total population growth rate, which was 2.8 % at the end of the 90s, is currently at 2.3 % and will certainly decline to less than 2% in 2010.

In spite of the demographic transition under way, the in-school population (aged 4-24 years) should rise by 2015, from 8.5 million in 2004 to nearly 11 million (recording more than a one-third increase), thus creating a strong demand for education. More specifically:

- at the pre-school level (4 - 5 years), the population is expected to rise from 1,064,000 in 2004 to 1,220,000 in 2015 ;
- at the primary school level (6 - 11/12 years), the population is expected to rise from 2,914,800 to 3.5 million in 2015 ;
- at the first level of secondary education (12 - 15 years/13 - 17 years), the rise is expected to be from 1,674,000 in 2004 to 2,234,400 in 2015 ;
- at the second level of secondary education (16 - 18 years /18 - 19 years), the population is expected to rise from 1,003,400 to 1,379,600 in 2015 ;
- at the level of higher education (19/20 - 24 years), the increase is expected to be from 1,773,058 in 2004 to 2,437,451 in 2015.

1.2. Social context

The Poverty Reduction Strategy Paper (PRSP) prepared by the Cameroon Government in 2003 addresses one of the country's major challenges: tackle a significant public spending deficit which, without appropriate and sustained attention, would weaken the foundations of both medium-term growth and social cohesion. In fact, the social environment worsened during the decade Cameroon experienced the economic crisis. The provision of basic social ser-

vices by the State was particularly affected by the financial crisis. There was a major decline in the development of basic infrastructure (roads, schools, hospitals, the electrical grid, telecommunications, water supply, etc.) non-maintenance of existing infrastructure owing to the lack of funds.

In the education sector, barely one out of two children (56%) completes primary school as a consequence of a very high repeating rate (30% on average in the entire educational system), although access to primary education for school age children peaked at 95% in 2001 due, among other reasons, to free primary education in State-owned schools. This low survival rate in the education system, which stems from several structural problems of the system, entails substantial social and economic costs which increases with an increase in population.

Concerning health, despite considerable and sustained efforts by public authorities, the health status of the population worsened, in comparison with the early 1990s. Infant mortality increased by 12 percentage points between 1991 and 1998, chronic malnutrition for children aged between 12 and 23 months rose from 23% to 29%, while childbirths carried out by qualified staff declined by 5 percentage points during the same period. HIV/AIDS, which registered an alarming increase from 2% to 11.8%, accompanied by a recrudescence of tuberculosis, is wreaking havoc mainly among the working population. Worth noting is also the persistence of malaria, which still accounts for 40% to 50% of consultation cases and 28% of patients hospitalised. Consequently, there is a qualitative and quantitative reduction of human capital which should sustain growth. The key indicators of the country's health map are as follows: one physician for every 10,000 inhabitants, one nurse for every 2,250 inhabitants and one hospital bed for every 770 patients.

Thanks to the combined effects of poorly managed urbanisation and the economic crisis, Cameroonian towns, particularly the largest, are facing numerous problems related to issues such as the proliferation of haphazard buildings and insecurity, rising unemployment, increase in the number of the homeless, street children, prostitutes, mental patients, etc. The general unemployment rate was 8.4 % during the first quarter of 1996 (9.8 % for men and 6.8 % for women) and was as high as 21.7 % in urban areas, but only 3.5 % in rural areas. The 20 - 24 year age group was the most affected, with an employment rate of 15.4 %, while the urban female population of the same age group recorded the highest unemployment rate of all social categories with a rate of 48.7 %. The informal sector keeps 85 % of the working population busy, with the remaining 15% being absorbed by the formal sector.

Generally, human development indices worsened significantly during the years of the economic crisis, especially those of the education and health sectors. The good economic performances of recent years are still inadequate to correct the situation, though poverty has begun to reduce. That is why the human development index (HDI) in 2002 was about 0.512, placing Cameroon in the 135th position out of a total of 173 countries.

1.3. Physical features and natural resources

With a surface area of 475,442 square kilometres, a remarkably diverse natural environment, 200 kilometres of coastline, rivers that empty into the great basins of the Congo, Niger and Lake Chad, fertile volcanic soil, humid forests , waterfalls and a population density of 33 inhabitants per square kilometre, Cameroon has a high natural resource potential. These physical features have facilitated the growth of the country's main agricultural produce namely: coffee, cocoa, rubber, banana, cotton, millet, sorghum, sugar cane, palm oil and rice and have equally permitted a substantial increase in livestock production. The waterfalls and water resources are used for the production of hydroelectric power. Cameroon also possesses mineral resources (petroleum, gas, bauxite, iron ore, uranium). The country would have been rich if

prospecting and mining of deposits were undertaken by skilled and well-equipped local human resources.

1.4. Economic context

1.4.1 Overview

From independence, up to the early 1970s, Cameroon witnessed steady and balanced growth, with real GDP increasing by an annual average rate of 4 %. The late 1970s saw the emergence of a new phenomenon: under the influence of an economy driven by oil production, where economic growth accelerated to a peak of 13% per year between 1977 and 1981 with a decline to 8% between 1982 and 1985. In the mid-1980s, Cameroon experienced serious economic crises as raw material prices plummeted, causing an economic slowdown followed by severe recession. The situation was turned around only following a devaluation of the CFA franc in January 1994, which brought the real GDP growth rate to about 5 % in 1994-95.

The economic programmes implemented subsequently by the Government helped to stabilise real GDP growth at an annual average of about 4.5% while inflation was reduced to less than 3 %. The trade balance remained positive, while the current transactions deficit was reduced by half, from 3% in 1997-1998 to 1.5 % in 1999-2000, and the budget balance (commitment basis) was stabilised at about 2 % of GDP.

Cameroon began the 2000-2004 periods on a note of eligibility to the enhanced debt reduction initiative for Highly Indebted Poor Countries, which was crowned with attainment, in October 2000, of the decision point. During that period, GDP growth fell slightly from 4% in 2000 to 3.9% in 2004.

Non-oil budgetary resources recorded a net increase, from CFA F 875.1 billion in 2000 to 973.4 billion in 2004. The effect of the oil price increase on oil revenues failed to offset the impact of lower production during the same period. There was a decline of 30% from 438.3 billion in 2000 to 337.7 billion in 2004 from oil revenues.

Faced with the obligation to honour commitments in respect of external debt service payments, the Government took a set of measures (quarterly programming of credit lines, eventual elimination of impress accounts, regulation of the power rating of official cars to match the post held, etc.) in a bid to control running expenses, whose percentage of GDP fell from 13.5% in 2001 to 11.4% in 2004. The relatively low utilisation of budgetary allocations intended for investment expenditures, due to complex public contracts procedures accounts to a large extent, for the successive reduction in budget resources earmarked for public investment. Thus, as a percentage of GDP, public investment expenditures dropped by one percentage point to 2.2% in 2004.

As a percentage of budgetary expenses, the share of resources allocated to social sectors (education, health, social welfare and employment) increased from 18.5% in 2000 to 25.3% in 2005. This demonstrates Government's resolve to combat poverty. The share of resources allocated to production sectors (infrastructure and rural development) as a percentage of total budgetary expenses also recorded a significant increase from 10.5% in 2000 to 14.5% in 2005. Thus, the resource allocation policy implemented by the Government is consistent with the objectives of the Poverty Reduction Strategy Paper.

The outstanding public external debt, most of which is bilateral debts (62%), recorded a downward trend during the 2000-2004 period, plunging from CFA F 4461.3 billion (68% of GDP) in 2000 to CFA F 3545 billion (42.3% of GDP) in 2004.

Recent developments indicate that Cameroon's economy slowed down, as growth was at 3.5% in 2004 compared to 4.1% in 2003. It was estimated at 2.7% in 2005 and was expected to rise to 4.5% in 2006. From the demand perspective, growth is still driven by domestic demand. But a fall has been noted in the share of private consumption in the GDP, with a negative contribution to growth in 2005, while public consumption tends to increase. The share of both public and private components of investment is on the rise. The trend of positive contribution to growth by external demand since 2004, particularly which of service-related exports and non-oil exports, seems stronger.

The inflation rate is still below 3%. This is attributable to foodstuffs (a key component of the index) whose production rose to meet the constantly rising urban demand.

Table 1: Key indicators of Cameroon's economy

Years	1999	2000	2001	2002	2003	2004	2005	2006
GDP at market prices (in CFA F billion)	6171	6612	7061	7583	7917	8378	8757	9400
GDP at deflated prices 2000 (in CFA F billion)	6326.6	6612.4	6910.9	7187.9	7482.7	7747.1	7965.2	8304.5
Real GDP annual growth (in %)	4.3	4.5	4.5	4.0	4.1	3.5	2.7	4.5
Sectoral distribution (Annual growth in %)								
Primary Sector	6.4	3.6	3.73	3.7	3.7	4.2	3.9	4.0
Secondary Sector	3.3	4.3	1.0	0.8	0.8	0.5	-0.8	3.9
Tertiary Sector	6.4	4.4	8.5	7.3	7.3	5.4	4.7	4.6
Poverty rate (as a % of the population)			40.0					38.6
Population	2.8	2.8	2.8	2.8	2.8	2.8	2.8	2.8
Per capita GDP	1.5	1.7	1.7	1.2	1.3	0.7	0.0	1.5
Per capita consumption	1.2	1.9	0.2	1.7	4.2	-0.6	-3.4	-2.7
Prices (Annual growth in %)								
GDP deflator		2.5	2,3	3,4	0,3	2,3	1,7	3,1
Retail prices	7.8	14.4	2.8	2.8	0.6	0.3	1.5	1.8
Components of demand (as a percentage of GDP)								
Consumption	80.8	79.7	81.0	81.0	82.2	80.6	79.0	75.7
Private	71.3	70.2	70.7	70.8	72.2	70.4	68.2	65.0
Public	9.5	9.5	10.2	10.2	10.0	10.2	10.8	10.8
Public finance (as a percentage of GDP)								
Non-grant revenues	15.0	19.9	17.7	17.9	16.8	15.6	17.0	18.4
Expenses	13.9	15.6	16.9	16.0	15.5	13.8	15.0	16.2
current	*11.9*	*12.1*	*13.6*	*13.3*	*13.3*	*11.6*	*12.0*	*12.3*
capital	*1.9*	*3.3*	*3.3*	*2.5*	*2.1*	*2.2*	*3.0*	*3.9*
Source : MINFI/DAE								

1.4.2. Economic prospects for 2015

Strategic thrust number 1 of the Poverty Reduction Strategy Paper concerns the promotion of a stable macroeconomic and budgetary framework. To take into account the national economic situation, the international environment and new strategies which were adopted, the central forecast of the PRSP was updated in 2005. Generally, it shows that the current growth

rate is still insufficient to really bring about an improvement in the living conditions of the population and raise per capita income in Cameroon.

Government's long-term objective is to gradually raise the GDP real growth rate to at least 7%, which should enable an increase in the per capita real GDP by about 3% to 4%, the minimum level required for a significant reduction of poverty, in a bid to attain the millennium development goals. In 2005, growth was estimated at 2.7% and was expected to rise to 4.5 % in 2006, then to 4.7 % in 2008 and should reach an annual average rate in excess of 5% during the 2008-2015 period.

In the primary sector, average real growth of agricultural production is estimated at 4.3%, taking into account the increase in population and, consequently, of domestic demand, as well as of the developments in sub-regional market penetration and supply of national industries.

The growth rate in the secondary sector could reach 6% in the long run. In general, it depends on the production of hydrocarbons, energy and basic infrastructure like roads. The growth of petroleum production in Cameroon should resume considering the new prospects thereon.

The manufacturing industries should buttress growth at an average rate of 6.5%, due to advances made in wood processing and the buoyancy of branches in agro-industry, cement manufacturing and metallurgy. Reviving investment in the energy sector should permit an increase in the production of electric power which should boost growth in that sub-sector. In fact, the new power plants construction project should contribute to increasing the supply of energy. The construction of these power plants should accelerate growth in this sub-sector which largely influences production in other sectors.

The tertiary sector should benefit from the upward trend in activities linked to new communication technologies, computing, Internet and mobile telephony, thanks notably to the benefits of fibre optics, which augurs well for fairly high growth rates in these branches. In addition, with the effective opening of the financial market, profound changes in the financial sector could occur in this sector. For these reasons, the real growth rate in the tertiary sector should stay at an average of about 6.5% per year. These three sectors together would generate a real GDP growth rate of 4% to 6% by 2015.

1.4.3. Implications for public finance

State resources could represent about 15% of GDP by 2015. Non-oil revenues could remain at about 13% up to 2015.

The Government has resolved to increase non-oil revenues. The fiscal and customs reforms under way, the broadening of the tax base through, amongst other measures, a reduction of exemptions and greater rigour in the application of special taxes and the introduction of the income tax reform should increase the level of non-oil revenues as a percentage of non-oil GDP. Thus, part of non-oil revenues could be maintained at an average 13 % of non-oil GDP. Consequently, the budget balance should evolve favourably and financing needs would remain moderate in view of the extent of efforts.

Concerning expenses, it is expected that global public expenditure, in proportion to GDP, will remain within the current levels to avoid penalising growth as a result of overtaxing production sectors. In that context, it is anticipated that there will be room for expansion of public expenditure in priority sectors, like education, health and infrastructure, as a result of the contraction of debt service, notably following the attainment of the completion point of the HIPC initiative in 2006.

Table 2: Medium-term macroeconomic forecasts, 2006-2015

Year	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015
GDP at market prices (CFA F billion)	9399.9	9833.9	10452.9	11157.6	11936.1	12871.5	13869.7	14863.4	15872.2	16907.6
GDP at deflated prices 2002	8304.5	8611.7	9006.0	9459.8	9955.2	10579.3	11227.9	11844.8	12451.3	13059.7
Growth and poverty										
Poverty rate (% of population)	38.6					35.5				32.7
Annual growth (in %)										
Population	2.8	2.8	2.7	2.7	2.7	2.7	2.7	2.7	2.7	2.7
Per capita GDP	1.5	0.9	1.9	2.3	2.5	3.6	3.4	2.8	2.4	2.2
Per capita consumption	-2.8	-1.7	-0.5	0.6	1.4	1.9	1.4	0.1	-0.1	-0.2
GDP at deflated prices	4.3	3.7	4.6	5.0	5.2	6.3	6.1	5.5	5.1	4.9
(Percentage of GDP)										
Non-grant revenues	18.4	17.8	17.1	16.7	16.3	15.9	15.5	15.2	14.9	14.7
oil revenue	5.8	5.0	4.4	4.0	3.7	3.3	3.0	2.8	2.5	2.3
non-oil revenue	12.5	12.8	12.8	12.7	12.7	12.6	12.5	12.4	12.4	12.3
Non-oil revenue (as a % of non-oil GDP)	13.6	13.7	13.5	13.3	13.2	13.1	13.0	12.9	12.8	12.7
Expenses	16.2	16.7	17.2	17.0	16.4	16.0	15.6	15.3	14.9	14.5
running expenses	12.3	12.1	12.2	11.9	11.3	10.9	10.4	9.9	9.6	9.3
capital expenses	3.9	4.6	5.0	5.1	5.1	5.1	5.3	5.4	5.3	5.2
Overall balance, commitments basis	3.3	2.2	0.9	0.7	0.8	0.8	0.8	0.8	0.9	1.0
Overall balance, cash basis	2.1	1.7	0.4	0.2	0.4	0.4	0.4	0.4	0.4	0.4
(as a percentage of GDP)										
Financing	-2.1	-1.7	-0.4	-0.2	-0.4	-0.4	-0.4	-0.4	-0.4	-0.4
Net external financing	1.1	0.4	1.4	1.4	1.1	1.0	0.9	0.8	0.8	0.7
Net domestic financing	-2.2	-2.1	-1.8	-1.6	-1.5	-1.4	-1.3	-1.2	-1.1	-1.1
Residual financing need	-1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Debts **(as a percentage of GDP)**										
External debts										
Outstanding debts	0.34	0.32	0.30	0.28	0.27	0.25	0.24	0.23	0.22	0.21
Debt servicing	0.03	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.01	0.01
Interest	0.01	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Source: MINFI/DAE										

1.5. Situation of ICTs

Despite Cameroon's economic performance within the Central Africa sub-region, the quality of its human resources, the wide variety of its cultural assets, its infrastructural potential, its strategic position which provides access to the sea for several countries in the region, and the political stability it enjoys, the country remains one in which ICT penetration and usage are relatively low.

In fact, according to the findings of a national survey (Scan ICT) conducted in 2006 by the Ministry of Posts and Telecommunications, with support from development partners, telephony services were available in only 30% of the country, with a fixed teledensity of 0.7% and mobile teledensity of 15% in 2005. The survey also showed that less than 7% of institutions and enterprises were equipped with a computer, less than 27% of government services were connected to the Internet and, lastly, less than 2% (0.16%) of Cameroon's population use the Internet.

Yet, Cameroon possesses a huge potential which could make it a major ICT development pole in the Central African region. In fact, the educational system, particularly higher education, despite its many problems, is fairly developed and could serve as a formidable ICTs launching point in Central Africa. On the other hand, the country is endowed with a fibre optic backbone along the Chad-Cameroon pipeline and which is still underutilised. Likewise, a landing point of the South African Telecommunication 3 (SAT 3) sub-marine cable is open at Douala with a capacity of 2.5 Gbit. Two private mobile phone companies and one State-owned fixed phone company (already engaged in a privatisation process) equally invested about CFA F 300 billion during the 1999 – 2004 period.

At the policy level, by inaugurating the multimedia resource centre at the *Lycée Général Leclerc* in Yaounde in November 2001, the President of the Republic defined the vision of a country "which is bracing up to adapt to the requirements of the information society". In his address to the nation on 3 November 2004, in the wake of his election to a new seven-year term of office, he restated that "the country needs generalised Internet access".

In all respects, the context is thus favourable for strong action towards defining a bold ICT development and deployment policy and for formulating effective and coherent strategies to speed up Cameroon's access to the global information and knowledge based economy.

Chapter 2: CURRENT SITUATION OF ICTs IN CAMEROON

2.1. Legal, regulatory and institutional framework

This section reviews current situation of laws and other instruments regulating ICTs in Cameroon. Efforts have been made to enact laws governing certain aspects of ICTs in the country. However, the numerous legal instruments enacted over the last two years to regulate the audiovisual and telecommunications sectors in particular, have failed to provide appropriate and satisfactory solutions to existing problems

2.1.1. Legal and regulatory framework

A couple of years back, the Cameroon government had opted to liberalise the audiovisual sector and, accordingly, enacted a number of legal instruments governing broadcasting. This was all the more necessary since the legal framework in force then had to be reformed to take account of the shift from a situation of monopoly to that of competition as concerns radio and television broadcasting. CRTV was the sole broadcaster in Cameroon, but private audiovisual broadcasting was authorised by Law No. 90/52 of 19 December 1990 as amended by Law No. 96/4 of 4 January 1996. However, it is only recently that private audiovisual operators have been able to avail themselves of that law, thanks to the issue of Decree No. 2000/158 of 3 April 2000 to implement the said law. This gave rise to an abrupt increase in applications for authorisation to set up radio and television stations.

The arsenal of instruments governing the telecommunications sector includes:

- Law No. 98/14 of 14 July 1998 to govern telecommunications in Cameroon ;
- Decree No. 98/198 of 8 September 1998 to set up the Cameroon Telecommunications Corporation (CAMTEL) ;
- Decree No. 2001/830/PM of 19 September 2001 to lay down modalities for the operation of telecommunications networks ;
- Decree No. 2001/831/PM of 19 September 2001 to lay down modalities for the provision of telecommunications services ;
- Law No. 2001/10 of 23 July 2001 to institute minimum service in the telecommunications sector ;
- Law No. 2005/13 of 29 December 2005 to amend and supplement some provisions of Law No. 98/14 of 14 July 1998 to govern telecommunications in Cameroon.

So far, the laws regulating the Internet sector in Cameroon are still in preparation.

2.1.1.1. Analysis of the weaknesses in the legal instruments in force

The current legal and regulatory framework governing the audiovisual and telecommunications sector has a number of shortcomings; and thus needs to be improved. For example, the main law regulating telecommunications in Cameroon (Law No.. 98/14 of 14 July 1998) makes no reference to mobile telephone services, Internet access, etc. Moreover, the too many instruments which currently exist may lead to confusion and uncertainty.

Concerning business, there is no appropriate legal framework to regulate the use of ICTs for business. A business environment governed by appropriate laws and regulations should aim at creating competition through adequate incentives for investment and innovation in ICTs, in a bid to improve access to services as well as service quality. It should be able to attract foreign investors, and keep away those who may obstruct local initiatives or undermine consumer rights. The current law governing competition (Law No. 98/13 of 14 July 1998) should be amended to take account of ICTs. An ICT law could even be envisaged to foster fair competition and ban some business practices such as the misuse of the dominant position.

Appropriate laws could further be enacted to better protect intellectual property (copyright, patents, registered trademarks and other industrial works), protect and secure data, punish computer and cybernetic offences, and enable free access to information. An appropriate legal framework is indispensable to deter the infringement of intellectual property rights in the ICT domain. Such laws should aim not only to protect investments, but also to encourage creativity as well as the digitalisation of folklore, arts and music and even to protect the owners of such works.

The absence of legislation on e-trade or on electronic data interchange (EDI) and related issues is a major handicap. Such legislation should be able to establish the legal recognition of an electronic signature and to provide answers to pending questions concerning online transactions (the legality of contracts or transactions concluded on the Web, for example).

It should be acknowledged that there is no harmonised legal framework for ICT regulation in the CEMAC sub region. OHADA and similar institutions ought to incorporate such a framework in their laws in force.

2.1.2. Institutional framework

A number of institutions are involved in the control and development of ICTs in Cameroon. The government has general oversight of the development and control process, but there are also dedicated institutions.

The Presidency of the Republic plays a determinant role since it defines and lays down guidelines for the national ICT policy. The Head of State is conscious of the vital role this sector plays in Cameroon's economic development, good governance and poverty reduction. The importance attached by the President of the Republic to this sector is evidenced by the fact that NAICT – the institution directly responsible for laying down guidelines and regulations for the ICT sector in Cameroon – is placed under the technical supervision of the Presidency of the Republic.

The Prime Ministers' Office is responsible for monitoring, that is, ensuring that the national ICT policy is effectively implemented.

The National Assembly also plays a vital role in national policy implementation. Its role is mainly legislative, since it is responsible for voting ICT related laws. This role is all the more relevant since one of the duties of the National Assembly as a legislative body is to control general government action.

A number of ministries are involved or will be involved in the development, deployment and exploitation of ICTs at various levels. For example, the Ministry of Communication will be

involved since it is the ministry responsible for studying applications for licenses submitted by potential operators of the audiovisual sector. The Ministry of Trade will undoubtedly be involved, and will have to work in collaboration with institutions having the technical know-how to introduce an enabling mechanism and environment for e-trading.

The National Agency for Information and Communication Technologies (NAICT) was set up in 2002 by Decree No. 2002/92 of 8 April 2002. Its duty is to promote and monitor government action in the area of information and communication technologies. In this respect, as part of its guidance and regulation missions, NAICT is responsible for:

- formulating and monitoring the implementation of the ICT national development strategy;
- ensuring the harmonisation of technical standards, proposing technical references in order to facilitate interoperability among information systems and regulating the sector;
- providing expertise to government services for the design and development of their technical projects;
- coordinating the establishment and monitoring of Internet, Intranet and Extranet sites for the State and public bodies;
- contributing to the technical training of trainers for universities, high schools, colleges, teacher training colleges and primary schools ;
- participating in the training of State personnel in ICTs by making recommendations on the content of technical training courses and on the programmes of professional and competitive examinations.

In accordance with Decree No. 2005/124 of 15 April 2005 to organise the Ministry of Posts and Telecommunications (MINPOSTEL), that ministry has an important role to play in this sector. It is particularly responsible for formulating, implementing and evaluating government policy in the domain of posts and telecommunications. It also has supervisory authority over the Telecommunications Regulatory Board (TRB).

MINPOSTEL's duties further include contributing to the development of infrastructure and network access to new information and communication technologies (see in particular Article 54 of Decree No. 2005/124 of 15 April 2005 to organise that ministry). Another duty of MINPOSTEL is to ensure that the private sector effectively becomes an important partner in the telecommunications sector with respect to wealth and job creation opportunities. The ministry also supervises public enterprises operating in this sector, represents the State in international meetings in this sector (see Section 21(1) and (2) of the 1998 law governing telecommunications), and manages the frequency spectrum on behalf of the State through the inter-ministerial commission as laid down in sections 23-26 of the 1998 law. Moreover, it is the duty of the ministry to ensure compliance with laws and other statutory instruments as well as with international conventions to which Cameroon is signatory.

The Telecommunications Regulatory Board (TRB) is the public institution particularly responsible for regulating, controlling and monitoring the activities of the telecommunications sector in Cameroon. It is placed under the supervisory authority of MINPOSTEL. It was set up by the 1998 law on telecommunications (see section 22(1) of that law). TRB's duties are spelled out in Section 22(2) and repeated in Article 3 (1) of Decree No. 98/197 of 8 September 1998 to lay down the organisation and functioning of the Telecommunications Regulatory Board as follows:

> "The Board… shall be responsible for regulating, controlling and monitoring the activities of businesses and operators involved in the telecommunications sector. It shall also ensure compliance with the principle of equality in the treatment of users in all telecommunications enterprises."

Another important duty of the Board is to arbitrate in the event of disputes between operators of the sector concerning in particular « the interconnection or access to a telecommunications network, numbering, frequency disturbance and the sharing of infrastructure."

The National Centre for the Development of Computer Services was the first national body responsible for data processing and related issues. Its main duties include the computerisation of ministries and public institutions. However, over time, CENADI's role has been reduced to monitoring computerisation programmes and solving computer related problems in the Ministry of Finance.

2.2. Infrastructure

This section is devoted to the review of basic ICT infrastructure in Cameroon.

2.2.1. National telecommunications infrastructure

The Ministry of Posts and Telecommunications prepared an inventory and a diagnosis of Cameroon's telecommunications infrastructure in 2004, as part of the preparation of the telecommunications and information and communication technologies strategy document of the Ministry, which was validated in 2005. The document is available on the website www.minpostel.gov.com. Some key points of the inventory have been reproduced in this document.

2.2.1.1. Public Sector

The telecommunications network managed by CAMTEL, the national incumbent public operator, is as follows:

(a) « Voice » service offer

The CAMTEL network is composed of analogue and digital telephone exchanges. The telephone network is structured into 5 levels as follows :

- Local Exchange Centres: 9 Remote Switching Units (RSU) and 4 Digital Line Units (DLU) ;
- Autonomous Local Exchange Centres with transit functions : 21 Analog and 12 digital centres ;
- Regional Transit Centres: 2 digital Autonomous Local Exchange for Garoua and Buea and 4 Analogue at Maroua, Ngaoundere, Bertoua and Bafoussam with transit functions ;
- National Transit Centres: 4 digital centres (2 in Yaounde and 2 in Douala).
- International Transit Centres (ITC): 4 digital centres in Yaounde and Douala e international transit functions.

The telephone exchanges have a total capacity of 175 000 lines.

(b) Data service

Data services are offered in various forms :

(i) X.25 packet-switched data services:

- The CAMPAC network for X.25 data transmission with two digital exchanges in Yaounde and Douala and access concentrators in provincial headquarters.

(ii) Corporate communication services:

- by satellite : two VSAT Hubs, one in C band and the other in Ku band located in Zamengoe, used mostly by operators and enterprises. The new Ku band Hub offers Multimedia services to rural areas and enterprises ;
- by dedicated wire links (copper or fibre optics) ;
- by dedicated radio links ;
- by virtual private networks (VPN).

(iii) « Internet » services,

- Two access nodes in Yaounde and Douala connect Cameroon's network to the international network through international bandwidths of 155 Mbps in Douala (SAT3) and 4 Mbps in Yaounde (satellite) ; a 10 Mbps link interconnects the two nodes ;
- Points of Presence (PoP) in Garoua, Ebolowa, Buea, Bafoussam, Sangmelima and Kribi ;
- ADSL access multiplexers (DSLAM) in Yaounde, Douala, Ebolowa, Sangmelima, Kribi, Bafoussam, Buea, Maroua, Mbalmayo, Limbe, Edea, Bamenda, Dschang, Bertoua and Ngaoundere.

The nodes and Internet PoP provide a Dial-Up access capacity of 2400.

(iv) « Telex » service: Telex service is offered through a digital exchange in Douala for national and international services.

(v) Telegraphy service: Telegraphy service is offered through a digital exchange located in Yaounde.

(c) Transmission

1The transmission network comprises :

- three telecommunications space stations in Yaounde, Douala and Garoua ;
- a landing point of the optical fibre submarine cable (SAT3-WASC/SAFE) ;
- analogue transmission links about 4 000 km long ;
- digital radio-relay systems about 1200 km long ;
- urban inter-exchange optical fibre and wireless links in Yaounde and Douala ;
- an optical fibre cable laid along the Chad-Cameroon pipeline about 900 Km long ;
- a « C » band VSAT Hub and a "Ku" band VSAT Hub situated in Zamengoe.

The three telecommunications space stations in Yaounde and Douala (standard A), and Garoua (Standard B) are running satisfactorily. As concerns the VSAT network, CAMTEL uses Intelsat in "C" band (18 MHz) and "Ku" band (18 MHz). The number of customers who can be served depends on the bandwidth required.

The landing point of the SAT3 submarine cable is found in Douala and offers high bandwidths to the international network. The current international bandwidth has a 2.5 Gbps capacity. Efforts under way should increase this capacity to 10 Gbps in 2007.

The analogue wireless links concern the following main routes :

- Yaounde – Douala via Edea;
- Douala – Bafoussam ;
- Yaounde – Kousseri via Bertoua, Ngaoundere, Garoua and Maroua ;
- Bafoussam – Lere (Ngaoundere) ;
- Buea – Kumba – Bamenda whose equipment has been out of order for long.

Digital wireless links serve on the following areas :

- Douala - Yaounde via Edéa: PDH 3+1 link with a 34 Mbps capacity. CAMTEL takes up all the capacity of this line under normal circumstances;
- Douala-Yaounde via Bana : PDH 2+1 link with 34 Mbps ;
- Links between South-West digital stations using PDH technology at a rate of 34 Mbps, as well as between Buea and Douala;
- The South FH link using SDH technology with STM1 capacity (155 Mbps) between Yaounde, Mbalmayo, Ebolowa, Sangmelima, Lolodorf and Meyomessala ;
- The FH link using SDH technology with STM1 between Yaounde and Zamengoe. Inter-exchange links in Douala and Yaounde ;
- Inter-exchange links in Douala and Yaounde

There are two types of optical fibre links :

- Optical fibre link along the pipeline between Kribi and Lolodorf with STM1 capacity ;
- the 12 optical fibre cables, which is still unused, along the Chad-Cameroon pipeline.

Projects under way :

- as part of phase 2 of the extension of the Douala and Yaounde exchanges : construction in each of these towns of a self-healing optical fibre loop with STM16 capacity (2.5 Gbps) to link exchanges and connect subscribers using optical fibre ;
- the optical fibre link with STM16 capacity between Douala and Yaounde via Edea and Kribi.

(d) Access

The wire network which consists of symmetric pair copper cables is found in all areas where there is a telephone exchange or concentrator in rural areas, with Douala and Yaounde having 60% of the cable infrastructure. The cable network has a total capacity of 164 000 lines connected to telephone exchanges nationwide. The recent introduction of the local radio loop using CDMA technology (CTPhone network) in the access network has made it possible to satisfy the growing demands of the population. This access technology needs to be developed to enable CAMTEL to expand rapidly, considering the high investment costs required for the wire network. The ongoing extension of the CTPhone network should raise its capacity to 155 000 lines in the short term. This system gives access not only to telephone service but also to Internet services.

High-speed access based on ADSL technology uses existing copper cable infrastructure. By the end of phase 2 of the project, the ADSL system being deployed will provide 18 (eighteen) localities with a total capacity of about 9 000 lines. CAMTEL also provides high-

speed access to Internet services using radio technology (wireless LAN) with a capacity of 1 000 lines for Yaounde and Douala.

(e) Observations

The following observations may be made:

- all the electromechanical exchanges are based on obsolete technology and are out of production. The Maroua, Ngaoundere, Bafoussam and Bertoua exchanges which handle regional transit from local exchanges are virtually saturated, making the traffic flow difficult ;
- apart from the Yaounde-Centre and Douala Akwa-Centre telephone exchanges which were replaced in 2005, all the other digital exchanges found in these two towns belong to the first generation and cannot accommodate new services ;
- the equipment of telex and telegraphy exchanges is out of production;
- the capacities and quality of links between Yaounde and Douala are no longer able to satisfy CAMTEL's own needs and those of other operators and service providers ;
- the current installations of the transmission network, 80% of which are based on analogue technology, are obsolete. Most of the equipment was commissioned between 1983 and 1987; only the South network has been recently modernised through the PIM project ;
- it is becoming very difficult to obtain spare parts, leading to serious problems of maintenance ;
- it is not possible to introduce services such as Internet on analogue links ;
- it is essential to rehabilitate the Zamengoe and Bepanda earth stations ;
- the access network is characterised by :
    - the obsolescence of the cable network ;
    - saturation in the big cities, particularly Douala and Yaounde ;
    - planning difficulties arising from the lack of an urban development plan ;
    - insecurity of installations, leading to acts of vandalism.

2.2.1.2. Private Sector

The private sector telecommunications services covering mainly mobile telephony and data transmission, complements the public sector infrastructure and services described in the previous section.

Mobile telephony, which is provided by two private operators has expanded tremendously over the last three years and continues to spread throughout the country. Its density has risen from 0% to 15% in just a few years thanks to the ever expanding coverage of the national territory. However, there are a few setbacks:

- the duplication of inter-city transmission infrastructure due to the lack of an infrastructure sharing policy, thus raising investment costs and communication tariffs ;
- the current de facto duopoly is not conducive to the development of fair competition in the mobile telephony service ;
- mobile telephony service quality is not satisfactory in some areas ;
- inadequate coverage of the country ;
- high cost of communications and terminals ;
- insufficiency/lack of transmission capacity ;

- non-mastery of the saturation of spectrum resources in the 900 Mhz band ;
- pressure from operators to assign the 1800 Mhz band, entailing the revision of specifications.

The obsolescence of the public operator's transmission network has given rise to the emergence of many national private operators providing the public and businesses alternative telecommunication solutions (voice on IP, VSAT, and VPN).

2.2.2. National communications service provision

The state of national communications service provision stands as follows:

2.2.2.1. Audiovisual

The audiovisual landscape includes radio broadcasting and television broadcasting.

a) Radio broadcasting
Here are the various categories of radio broadcasting services found in Cameroon.

Public radio broadcasting

Public radio broadcasting in the country is managed by the CRTV, a State corporation, which consists of :

- 33 broadcasting stations, which are not evenly distributed throughout the national territory, although each province has at least one broadcasting station ;
- 20 production stations, with 2 per province ;

Areas that are uncovered by radio signals are often relayed by satellite signals.

Today, the CRTV signals may tentatively be received nationwide, although land reception limits actual coverage to about 60% of the country.

Private radio broadcasting

The private radio broadcasting sector consists of 37 stations, of which ¾ of these are located in Yaounde and Douala. In particular, there are no private radio stations in the Adamaoua and the South provinces.

Community radio

On 16 December 1996, an agreement was signed between ACCT and Cameroon aimed at promoting the emergence of local rural radio stations whose purpose is to provide radio service adapted to the specific needs of rural communities and enable such communities to contribute to the production and contents of programmes aired by these stations. Since then, 29 community radio stations have been set up, 25% of which are found in the Centre province.

Foreign radio stations

Partnership agreements signed between the CRTV Corporation and some foreign radio networks do authorise the CRTV to manage the broadcasting of their programmes. Through these agreements, the radio stations in question may be received in Cameroon on the frequency modulation bandwidth. Within this framework, eight frequencies have already been assigned.

b) Television broadcasting

Public TV broadcasting

The public television network, which is managed by a state corporation, the CRTV, has 33 stations which relay the broadcast signals from Yaounde. The signals are relayed by satellite, thus, making it possible to relatively cover the entire national territory. However, the land reception limits actual coverage to about 85% of the country.

Private TV broadcasting

Since the audiovisual sector was liberalised some time ago, 5 television stations belonging to 3 private operators have gone operational. Two are located in Yaounde, two in Douala and one in Bamenda.

2.2.2.2. Cable television

There are probably more than 200 private operators in this sector nationwide. However, less than 25% of them have expressed the desire to be recognised officially by applying for an audiovisual licence.

2.2.2.3. Audiovisual production

Sixteen (16) operators in this sector, almost all based in Yaounde and Douala, have applied for an audiovisual licence.

2.2.2.4. Observations

Generally, the following observations may be made with respect to the national communication service:

- although the audiovisual sector has been liberalised, it is still largely dominated by the public sector ;
- public broadcasting still has shadow areas across the country (40%) although the signal is relayed by satellite ;
- most private initiatives are concentrated in Yaounde and Douala ;
- most cable television operators are operating illegally ;
- community radio stations are very unevenly distributed nationwide.

2.2.3. Network and Internet infrastructure

As already mentioned above, the public infrastructure put in place to develop the telecommunications network is largely inadequate, and even unsuitable for meaningful expansion of Internet. To overcome these public network deficiencies, private operators are providing access solutions to institutions to set up their own private networks. Several government services and enterprises thus have networks facilitating communication between the head offices or central services, which are generally located in Yaounde or Douala, and external services found in the provinces. For instance, (without being exhaustive),almost all commercial banks have private data exchange networks, the Ministry of Higher Education which manages an interuniversity telecommunications network linking 16 university sites situated throughout the country.

However, there is no coordination in the construction of these networks, even within the same sector, such as in the Administration. Such non-coordination results in duplication of actions and incompatibility in the choice of technologies, which often makes interconnection and exchange of information between networks impossible.

While ensuring interoperability, the Internet is an interconnection of several networks in a random manner. For instance, each user is free to choose an operator, whose services should be able to send and receive information to and from a correspondent/server on another network.

In order to relatively increase the deployment of internet services in Cameroon, the cost of connectivity and bandwidth must be reduced, while improving on the quality of service in an effort to speed the spread of its exploitation. One of the most effective mechanisms to reduce costs is to setup an Internet Exchange Point (IXP), which interconnects internet service providers (ISPs) in the country, allowing them to exchange domestic Internet traffic locally without having to transit through multiple international hops to reach their destination.

Currently there is no IXP in Cameroon, consequently, most ISPs rely on satellite connectivity, which is more expensive and entails larger network capacity than the use of optic fibre cable.

The absence of an IXP in Cameroon means that all inter-ISP traffic (both domestic- and foreign-bound) must be exchanged through exchanges outside the country. An ISP must therefore send all outbound traffic through its international links, quite often by satellite and occasionally by SAT3 submarine fibre for ISPs which have access to it.

International links entail both upstream and downstream packet traffic, the costs of which must be borne by either the sending or the receiving ISP.

In concrete terms, IXPs generate two primary advantages for member ISPs and their customers: lower costs and improved quality of service.

An IXP slashes network latency (delay) by eliminating the need for any satellite hops in the routing of domestic-bound traffic resulting in an increase in the use of domestic Internet services thereby, increasing local demand for bandwidth and prompting more bandwidth to be dedicated to local interconnection. Since domestic bandwidth is always cheaper than international bandwidth, the business cases for domestic Internet enterprises improve dramatically – not just for ISPs, but for e-banking, e-commerce, e-government, content hosting, web services, etc.

IXPs therefore provide cheaper, faster, and more efficient connections. There is therefore an urgent need to setup an IXP in Cameroon.

2.2.4. Infostructure

Strictly speaking, public and private administrations have no information processing infrastructure. Indeed, although many institutions have in-house structures in charge of computer services (and incidentally of ICTs), very few of them have adopted an organisational or rational approach to set up or modernise their information management systems. Accordingly**, there are virtually no applications to facilitate the networking of various stakeholders**.

The practice of information gathering, processing, preservation and dissemination in usable formats to other users is uncommon in Cameroon. **As a result, Cameroon has no data banks or information systems that can be consulted by citizens and enterprises**.

Admittedly, technology is not an end in itself, but it is obvious that it does not suffice to invest in physical infrastructure; there is equally a need to invest in infostructure, governance and, above all, in the formulation of a clear and coherent vision. **Unfortunately in most institutions (public especially) investment is limited to the acquisition of equipment without any clear vision of the desired changes within the institution.**

Only the State financial services have strived to improve the collection, processing and preservation of data needed by services. In this respect, a number of applications are worth mentioning: the Integrated System for the Management of Public Finances (SIGEFI), the Integrated System for the Computerised Management of State Personnel and Salaries (SIGIPES), etc.

2.2.5. Production and services industry

In principle, Cameroon has no real ICT products industry; as such most of the equipment is imported, including access equipment (radio and television sets, computers, telephones) as well as routine maintenance equipment. Thus, the country is totally dependent on imports as far as the acquisition of equipment for ICT development is concerned.

With regards to content and services, there are many SME marketing ICT products and services (although based mainly in Douala and Yaounde). Most of them are local branches of foreign firms, or have concluded local representation agreements with such firms. However, the design, production and marketing of local products and services are still rudimentary; hence Cameroon is more or less an ICT products consumer.

Although the audiovisual sector has been in existence for a long time, the liberalisation of the sector has subsequently encouraged private initiatives. For instance, the creation of private radio and television stations, with their meagre resources still produce imaginative programmes that meet up with the public expectations. However, the contents and programme productions industry is being awaited. Generally, the low quantity and quality of national audiovisual production does not allow Cameroon to stand as a major player in the huge global market with far more than merely economic implications.

Despite its immense potentialities, Cameroon has yet to formulate a policy clearly reflecting its ambition to enter the ICT equipment and contents industry.

2.2.6. Summary

The public telecommunications network is obsolete and its capacities can no longer satisfy the needs of citizens and businesses.

There are still shadow areas in national communications coverage (15%) despite the satellite relay.

As concerns the Internet, Cameroon has no Internet Exchange Point that can enable local service providers to exchange traffic without relying on transnational infrastructure.

There are many digital disparities between urban areas (mainly Douala and Yaounde) and rural areas.

The infrastructure for gathering, processing and disseminating information is still rudimentary; indeed there is no information system in administrative services and enterprises.

The country has neither a veritable strategy for acquiring computer equipment nor a production industry (for physical and immaterial products) enabling it to develop all ICT-related sectors.

2.3. Human resources

This section is devoted to the evaluation of Cameroon's potential and assets in a world characterised by innovation and rapid information exchange at the global level. This will be examined in the light of ICT acquisition by Cameroonians. Indeed, in an information and knowledge based society, human resources constitute the primary capital in the race among coun-

tries and nations to play a dominant role in the global scientific, cultural, economic and political scene.

2.3.1. National training system

Citizens are trained either in the formal training system (pre-service or in-service), or by informal (personal) means. The idea here is to know the main modes of training used by Cameroonians to acquire skills in ICTs.

2.3.1.1. Pre-service training

The formal educational system (from primary to higher education) doesn't provide adequate training in ICTs. For some time to come, a vast majority of school leavers will still not have received any training in ICTs. For example, less than 5% of university students are ICT-enabled.

2.3.1.2. Continuing education

To overcome the inadequacies of the formal educational system and to meet current demands, many rapid training centres, of various calibres, have been set up and offer introductory courses to office automation and the Internet.

However, such training is most often tailored to individual needs to master the new tools. The issue of the institutional recognition of the newly acquired knowledge and skills by the keen and willing students then arises. There is really no system of standardising training courses and learning ("proficiency certificate/diploma" for example) in order to give better recognition to the skills acquired.

2.3.1.3. Personal training

Personal training is extremely limited given that very few citizens possess equipment (especially computers).

2.3.1.4. Training of specialists

Specialists are trained mainly in higher education institutions, whose graduates are either specialised technicians (G.C.E. 'A' Level + 2/3) or engineers (G.C.E 'A' Level + 4/5). It is difficult to open courses of study to train specialists in certain ICT fields (computer science, networks, telecommunications, electronics) owing to the low number of lecturers available in such branches (less than 20 full-time lecturers for all the training establishments).

The need to maintain a reasonable teacher/student ratio in these branches makes it impossible for establishments to train a certain number of specialists without jeopardising the quality of training. With current national training capacities, Cameroon can more or less conveniently train about 35 engineers and 300 technicians annually. At this rate, unless strong action is taken, Cameroon will not be able to have the critical minimum of specialists to sustain wide-scale ICT development and deployment.

2.3.2. ICT trades and careers

ICT specialists working in government services and enterprises are quite often frustrated with the management of their careers. There are no career plans; neither is there in-service training in this domain where knowledge becomes outdated in a twinkle of an eye.

The lack of a holistic vision of ICT development in establishments confines specialists who are recruited, throughout their careers, to technical assignments such as maintenance and operation of equipment, without any prospects of retraining them or reassigning them to other

duties or posts within the institution. The Data Processing "units" or "services" in ministries and other bodies thus constitute the top end of the careers of personnel working there.

Even more than salaries, the lack of attractive career prospects in local government services and enterprises is one of the factors aggravating the massive flight of ICT specialists abroad.

2.3.3. Summary

Broadly speaking, Cameroonian school leavers lack ICT culture.

There is no system for standardising in-service training and learning ("proficiency certificate/ diploma" for example), thereby unable to give any better recognition to the skills acquired.

The limited number of full time university lecturers (less than 20) available locally for some ICT fields notably: computer science, electronics, networks, and telecommunications renders it impossible for Cameroon to have the critical minimum of specialists to sustain wide-scale ICT development.

The lack of attractive career prospects in local government services and enterprises is one of the factors aggravating the massive flight of ICT specialists abroad.

2.4. ICT Contents

2.4.1 Current situation

The above diagnosis shows that Cameroon has no real strategy enabling it to develop a production industry in ICT-related sectors. Consequently, available content is derived from scattered, generally non-sustainable initiatives due to the absence of a national approach to content production.

It has already been underscored above that the level of national audiovisual production is quantitatively and qualitatively low. Similarly, the rudimentary state of infrastructure in institutions (intranet, extranet, coherence, consistency of information disseminated, information analysis and sharing mechanisms) has not yet made it possible to constitute real national public data banks.

As regards websites and portals, the survey conducted by MINPOSTEL in 2006 on the level of penetration and exploitation of ICTs in Cameroon shows that national enterprises have websites and portals. Only the quality of such sites will be analysed here.

In a general context where there is no policy on content production, available websites simply allow the owners to create static showcases on the web with a more or less rich content. The web publishing mode is generally similar to the publishing of a leaflet.

Specifically, there is incoherence in the choice of domain names. Only a tiny minority of establishments have their own name. Most of them use sub-domains assigned them by Internet access providers. Very few domain names have a **.cm** extension.

The editorial policy is generally poor. Few sites are dynamic, and are rarely updated. The majority of sites present only the activities and missions of the structure. Just a few public institutions are timidly introducing interactive websites (that of the Ministry of Higher Education www.minesup.gov.cm offers the possibility for personalised interaction with target public audiences).

Current news sites are more dynamic. They reflect the implementation of a more elaborate communication policy (site of the Prime Minister's Office at www.spm.gov.cm, and sites of press organs).

There is no coordinated and coherent policy on the production of digital content. Norms and standards for government sites are currently being established.

2.4.2 Summary

The lack of a national policy or strategy on content production largely limits the opportunities for the development of a real industry that could, broadly speaking, boost the sector and satisfy the ever increasing demands.

Most databases set up in many public and private services are in the embryonic stage of development and their capacity is limited. This largely contrasts with the demands for the modern management of structures, infrastructure and services.

Websites and portals created here and there just play a figurative role since the editorial is poor, sites are rarely updated and the information fed in is often obsolete, although a few government services distinguish themselves from this sad reality.

2.5. ICT usage and development

The survey on the penetration and usage of ICTs in Cameroon (MINPOSTEL 2006) provides statistics on the individual and collective usage of information and communication technologies in Cameroon. The basic conclusion of the survey is that the use of these technologies is not yet well developed in Cameroon. The following analysis, which is based on statistics from the survey, a few indicators of which have been reproduced in the tables below, seeks mainly to highlight factors limiting ICT usage in Cameroon.

2.5.1. Basic indicators

The SCAN ICT survey reveals the following amongst others:

(1) The number of fixed telephone lines available (174 000) is highly insufficient and does not foster the development in Cameroon of individual and professional uses of this technology : nearly one half (48.4%) of enterprises have no fixed telephone line, and hardly 5% of them can boast of more than three lines;

(2) The cost of telephone calls (especially mobile) is still relatively high ;

(3) The cost of a computer (equivalent to annual per capita income) makes this tool inaccessible to the majority of Cameroonians and constitutes a major obstacle to Internet access for the population. This is coupled with the low offer and the still very high cost of connectivity.

(4) Although radio and television have been around for a long time and cover almost the whole national territory, universal access is far from being achieved (only 62.3% and 26% of households have a radio and television set respectively) ;

(5) Internet fees are relatively high compared to income levels in Cameroon for provision of service at acceptable speed, which is another obstacle to Internet demand by households ;

(6) The rate of computer penetration in institutions is very low: 66.2% of institutions have no computer, and only 6.2% have more than one computer. Consequently, the number of employees having access to a computer at the work place is relatively very low ;

(7) Very few institutions are connected to the Internet (9.2%) and have a website (10.8%);

(8) There are wide disparities (geographical, income level, educational level) in access to ICTs.

2.5.2. ICT uses in socio-economic sectors

Although the above basic indicators already show that, generally, ICT use in Cameroon (Internet especially) is still poor, a review of notable initiatives in the various socio-economic sectors however enables a better understanding, from a sectoral perspective, of the efforts made by Cameroonians to take ownership of ICTs.

2.5.2.1. Education and research sectors

This sector includes schools, colleges, universities and research institutes. It is responsible for the development of human resources, the production and dissemination of knowledge, know-how and management of skills. As such, it plays the role of an important catalyst in the development and deployment of ICT in a country. In Cameroon the usage of such technologies in these sectors still needs to be developed although a few encouraging initiatives have been undertaken of late. These initiatives include:

- The setting up of an inter-ministerial committee on the development of ICT in the education sector
- A commitment to generalise the training in ICTs of all products (pupils, students) in the Cameroonian educational system, by progressively introducing ICT courses at all levels (schools, colleges, universities)
- Several initiatives by development partners such as the Canadian cooperation, the French cooperation and the Islamic Development Bank to support the development of ICTs in the educational sector
- The construction of multimedia resource centres (16) in some public schools with access to the internet
- The construction of a telecommunication network linking all the state universities and institutes of higher learning and the development of a data sharing resource centre, the inter-university centre for information and communication technologies
- The connection of all higher education and research institutes to the internet
- The setting up of a virtual library (inter-university documentary resource centre) which has ushered into the higher education landscape, innovative facilities that have apparently improved the quality of educational services (distance education) offered by these institutes.
- The putting in place of computerised educational management information systems (EMIS)

Despite the substantial efforts undertaken so far in this sector, the level of ICT mastery in an emerging knowledge based society like Cameroon vis-à-vis other countries at the same level of growth still remains very low. In fact

- Virtually all primary and secondary schools don't have any multimedia resource centre. Consequently, a larger percentage of products of the educational system leave without any initiation into the usage of ICTs. For instance about 44% of pupils drop out of school before completing the primary level, while less than 4% get into the higher education cycle.
- The computer/student ratio in the higher education sector is relatively very low, thereby being unable to support a favourable training environment on ICTs usage for all the students. So, less than 5% of these students use ICTs in the learning process
- The high cost of acquisition and functioning of ICT equipment makes it impracticable to provide universal training on ICTs

- Most of the lecturers don't have any training on the ICT domain
- The use of ICTs on improving the teaching and learning processes is still very rudimentary in the educational system. For instance most of the web sites are static, providing no interactive services to users and some with obsolete contents; virtual absence of didactic materials, un-computerised management and guidance systems
- Research centres and institutes are not well equipped with ICTs
- Scientific production is still rudimentary with no specific vision
- The production and deployment of interactive didactic materials are completely absent in the educational system

Despite the numerous initiatives observed so far, this sector may not be able to guarantee an adequate training in the mastery and usage of ICTs by her citizens which is necessary in

- order to be competitive in the emerging global knowledge society.

2.5.2.2 The Health and social welfare sector

Although the usage of ICTs is relatively very low in this sector, the major setbacks are the lack of equipment and access to ICT infrastructure. In fact, the absence of an information system in the sector to cater for the management of health and social welfare issues posses a series of difficulties, such as the inability to: exploit patients' personalised medical files; use electronic cards for health reasons, ensure a better epidemiological follow-up. The lack of telecommunication facilities in the health sector has an impact on the proper functioning of the health and collaborative networks intended to facilitate the management of district, provincial and referral hospitals. The use of telemedicine is still at its infancy, where diagnoses are still at the experimental stages.

With regards to the social welfare sector, the absence of a universal health insurance scheme coupled with the limited clientele of institutions offering social security services deters the development and deployment of wide-scale ICT applications. For instance, ICT applications to manage people who have social security concerns.

Therefore, there is an absolute need to put in place a real programme for the development of ICTs, which will focus on the modernisation of the national health system and aimed at developing new uses for health and social welfare personnel, patients and managers.

2.5.2.3 The production and trade sector

(a) General situation

As stated above, the level of corporate use of ICTs in Cameroon is relatively very low. Thus, this analysis involves only those enterprises that actually use these technologies. As such, the most commonly encountered uses of ICTs are related to the specificities of the domain, such as: commercial duties (purchases and marketing), management duties (administrative and finance) and production duties. The usage of the applications depends entirely on the duties of the enterprise. Most applications found in the commercial environments deal with the management of administrative and financial issues. Enterprises with internet connectivity (though rarely), quite often are involved with e-transactions, such as online banking transactions. However, the usage of e-transaction applications on legal and tax issues which are common in other countries as a catalyst for economic development is relatively low in Cameroon. The only concrete example available is the Directorate General of Taxation (www.impots.gov-.cm), which offers the possibility to download tax return forms and consult tax information. The web site of the one stop shop for external trade transactions (Guichet unique des operations du Commerce Extérieux - www.guichetunique.org) has not been operational for a long time.

(b) Financial sector

Certain customer services in the banking sector, which are traditional in other countries but innovations in Cameroon, are becoming very popular, such as, consultation of bank accounts (through Internet and Mobile telephone) and fund transfer (due to its simplicity, has been very well received in a country where only a handful of citizens hold bank accounts).

In this field, the Post Office (CAMPOST today) has lost much ground to competition for failing to adapt its traditional products (mail, fax, money order) in time to the emerging technologies (e-mail, SMS). Thus, for CAMPOST to survive it must therefore adopt ICTs.

(c) Trade

The relatively low usage of payment facilities (credit card) in our society is not encouraging to the development of electronic commerce which is still in its infancy. Moreover, the virtual inexistence of stock exchange services makes it impossible for national investors to keep abreast of international financial markets. This inadequacy of new banking facilities tends to limit the attraction of private foreign capital to Cameroon.

(d) Agriculture and the rural sector

Although Cameroon is essentially an agricultural country exporting several basic commodities, information on this sector is virtually absent on the web. The websites, where they exist, often present only the organisational chart, internal instruments, activities and missions of the structure. The promotion of agricultural products online is virtually absent.

There are practically no information services on stakeholders (producers, consumers, middlemen) using ICTs such as information or warning systems (on prices, stocks, the weather, disasters or emerging markets for example).

Generally, ICT usage still has to be developed in Cameroon's agricultural sector, to support production (stakeholder information and training), or for marketing (marketing, sales, customer relations). The lack of direct access to ICT and information relay services leaves producers ill-informed of market needs (both quantitative and qualitative). Therefore, producers' methods, techniques and organisation are scarcely adapted to demand trends.

In order to modernise the agricultural and rural sectors, in general, it is necessary to encourage young school leavers with competence in ICT usage to stay abreast with the current market trends of the rural world. (French version not explicit)

The likelihood of having young school leavers engage in agriculture and farming activities in rural areas is very slim because most ICT infrastructures are located in urban areas. Thus, this situation virtually leads to a disparity between national agricultural production and the local and foreign market demands due to lack of adequate information for producers.

(e) Cyber-services and work

At a time when some African countries (Tunisia, Morocco, Mauritius, Senegal) are already very active on the growing market of e-work, Cameroon has not yet been able to take advantage of its abundant assets (English-French bilingualism, literacy rate of the population, proximity to a Spanish-speaking country) by presenting its aspirations in this prom-

ising niche for new jobs (especially for higher education graduates). Strangely, Cameroon has no e-work enterprises or one offering services to third parties or the Internet, despite its potential in this domain.

Generally, the new organisational working methods, based on networking, are not yet functional in Cameroon. Accordingly, the emerging professions associated to the information society, which are a major source of job creation for the country, do not yet form part of the national labour landscape.

2.5.2.4. Defence and security sector

The advent of ICTs has opened up other variations of susceptibility, such as cyber criminality, which is a universal challenge to all countries. These new threats should be addressed by the security and defence forces, as well as the justice department towards appropriate prevention measures and punishment. An essential component of the security of citizens, enterprises and states now, is the prevention and punishment of unauthorised access to public and private information systems, as well as the malicious use and pirating of data.

In this context, Cameroon still requires the legal instruments necessary to cope with cyber criminality. Thus a review of the national legal arsenal is necessary.

In addition, the security services (Police and Gendarmerie) and the Justice system, lack the facilities and qualified personnel to handle the prevention and punishment of ICT-related offences against morality and the security of persons, property and institutions.

2.5.2.5. Sovereignty sector

Data or information on individuals, social, legal and economic structures are increasingly being stored in data centres located abroad by local companies or institutions. Thus, private firms, governments, universities, libraries, the legal professions and engineers sometimes access data services and networks located out of Cameroon for e-processing on topics of national importance such as data on satellite maps, information on natural resources, economic and population data, etc. However, the neutrality of information from foreign sources cannot be guaranteed.

The circulation of data across the cyber space renders such data beyond the scope of national laws and regulations, thus raising a number of questions relating to Cameroon's economy and sovereignty. As such, certain stakeholders in certain areas of the national economy paying special attention to such issues like:

- *population management*: civil status, national identity card, electoral register, population census, DNA mapping;
- *natural resource management* : data on satellite maps, geographical information systems, data from scientific, technical and economic studies ;
- *territorial management* : digitised mapping, geographical information systems, government communications, control of borders ;
- *Justice:* register of case files.

2.5.2.6. General and financial administration sector

In the public sector, the financial services (taxation, customs, treasury, salaries and the budget) are relatively more advanced in ICT usage. In fact, these services are far better equipped than other government services. The oldest and largest State computerised manage-

ment applications with inter-provincial networks are found in this sector. However, it should be noted that most ICT uses in the financial services are concerned with computerisation and are intended to improve the quality of internal work.

In non-financial services managed by ministries other than the Ministry of Finance, ICTs are used essentially for office automation purposes. Although the ICT equipment pools are often located within the central services, the external or de-concentrated services still rely on the typewriter era.

Therefore, in general, the relatively low level of ICT usage in government services is still bogging down the improvement of relations between these services and their users. New methods whereby citizens and enterprises can access public administration through new technologies (mobile telephone, Internet) are not yet offered.

2.5.2.7. Culture and leisure sector

As regards culture, there is an acute, global problem of protecting intellectual property. Therefore, nations are trying to adapt their laws to protect such investments and encourage creativity and the converting cultural and artistic works into formats. The conversion of the natural and cultural heritage of the country into a digital format is a major economic challenge. Indeed, the artistic heritage stands as the leading business in the tourism and leisure industry where the Internet serves as one of the best showcases.

Libraries, archives, museums and other national institutions of culture are not yet fully playing their role as content providers. In fact, very few of them have digital records or documentation that is easily accessible to the public.

The absence of Cameroon's cultural and natural heritage from the web is a major setback for the development of the culture, tourism and leisure industry in Cameroon.

2.5.2.8. Summary

Access constraints (insufficient offer, high cost of services and equipment, spatial disparities, insufficient attendant measures) are bogging down the development of the use of ICTs by individuals, families, enterprises and government services alike.

The national education system is not capable of training future citizens who master the information and communication technologies and their usage. And whose expertise is needed for the country to be competitive in the emerging global knowledge society.

The lack of ICTs in rural areas and the virtual neglect of producers have contributed to the disparity between national agricultural production and the demands of the local and foreign markets.

Apparently, not all the legal instruments that may favour the development of ICT usage in Cameroon are in place to control cyber criminality, protection of intellectual property, electronic data exchange, etc.

The relatively low rate of using electronic payment facilities in the society is influencing the development of electronic commerce.

Although, the government provides e-transaction services and online consultation of public information, access is still restrained to a good number of citizens and enterprises...

2.6. Cooperation and partnership

Cameroon is conscious of the necessity for international cooperation among all stakeholders to promote universal access to ICTs and to narrow the digital divide, notably by seeking ways

and means to achieve it. Accordingly, ICT development in Cameroon will result from a wide-scale multilateral, regional and bilateral cooperation headed by Cameroon.

2.6.1. Multilateral and bilateral cooperation

At multilateral level, Cameroon is a member of several international organisations, notably the International Telecommunications Union (ITU), the Commonwealth Telecommunications Organisation (CTO), the International Telecommunications Satellite Organisation (ITSO), the International Mobile Satellite Organisation (IMSO), UNESCO and UNDP. The country takes part in major international forums, colloquia, conferences and seminars to exchange ideas on relevant technical and statutory issues related to the World Information Society (WIS). Accordingly, it participated actively in the World Summit on the Information Society (WSIS), and took leadership of the ensuing declaration of principles, the Geneva 2003 action plan and the Tunis 2005 commitments. Some of the initiatives derived from multilateral cooperation over the past years include:

- the Economic Commission for Africa initiative on the definition of a National Information and Communication Plan (NICI Plan) ;
- the UNDP initiative on an ICT policy for Cameroon within the context of the Tokyo International Conference for African Development II (TICAD II) ;
- support by the International Telecommunications Union (ITU) towards the preparation of the MINPOSTEL sector strategy ;
- UNESCO support towards the establishment of rural community radios.

Moreover, civil society and some NGOs in Cameroon are developing ICT popularisation programmes in a bid to narrow the digital divide, with the financial backing of international institutions such as UNESCO, the UN Economic and Social Council, etc.

There are very few cooperation projects in the domain of ICTs for instance PKI, SAT3, and TCP although international organisations such as ITU, the European Union and CTO are ready to support many more projects aimed at improving education and health, boosting teaching, scientific and technical research, and building training capacities. Also, no special attention is paid to the evaluation of the impact of such projects on the economic, social and cultural development of the country. The mechanisms for implementing and monitoring cooperation projects are inefficient since there is no reliable catalogue presenting a brief account of cooperation agreements and projects.

At bilateral level, the French Cooperation lent support for the establishment of the interuniversity telecommunications network as well as for the training of trainers under the Coordination and Modernisation of Technology in Higher Education (COMETES) project.

A few agreements were signed with the US (COTCO) and China (HUAWEI) pertaining to the retrocession of the optical fibre cable laid along the pipeline and the introduction of CDMA technology respectively. There are no bilateral cooperation agreements between Cameroon with ministries and regulatory agencies of foreign countries with a higher, equal or lower level of economic development.

Cooperation and partnership activities are found in the following domains:

- capacity building for institutions and human resources development;
- sharing of experiences and exchange of best practices;
- technical and financial support for project execution;

- contribution to the preparation of international declarations, conventions and treaties.

2.6.2. Regional and sub-regional cooperation

At the regional level, Cameroon is a member of the African Telecommunications Union (ATU) and of the Regional African Satellite Communications Organisation (RASCOM), and also participates actively in regional forums on ICTs.

Cameroon has signed partnership agreements with some UN agencies, notably ECA with which the country recently conducted the SCAN ICT national survey dealing with the evaluation of the ICT penetration rate in Cameroon.

Some Cameroonian telecommunications operators and Internet Service Providers belong to the African Internet Numbers Registry of IP Addresses (AFRINIC).

The Cameroon civil society is a member of the African Civil Society on the Information Society (ACSIS), a Pan-African network.

At the sub-regional level, Cameroon has been able to make a name not only through initiatives to set up associations of Central African ministries and regulators, particularly COPTAC and ARTAC, but also by striving to conclude the agreement to host the Virtual University of Central Africa project.

2.6.3. Summary

Cameroon is making significant efforts to foster cooperation in the domain of ICTs. However, the numerous cooperation initiatives and projects relating to information and communication technologies are not coordinated, and may thus result in the duplication of projects, thereby making it impossible to optimise their impact on the country's development process.

2.7. Financing

The State, enterprises and individuals are involved in funding the development of information and communication technologies. For instance, enterprises and individuals contribute to the funding of telecommunications (telephone, Internet) by paying for services provided by the operators. The State, on its part, has put in place specific funding mechanisms such as the exoneration of certain computer equipment from VAT and audiovisual tax, and the telecommunications development fund.

These mechanisms on resource mobilisation are not yet capable of boosting ICT development, given the high costs of investments and operation, development and management of infrastructure; development of usage by individuals, households and enterprises; upgrading of the educational system; content production; industrialisation; etc.

2.8. Cameroon's strengths and weaknesses in the domain of ICTs

2.8.1. Strengths

Despite the numerous existing difficulties, Cameroon can rely on a number of strong points for the development of ICTs in the country:

- political will demonstrated by State authorities at the highest level ;
- existence of infrastructure, albeit obsolete, covering most of the country ;
- relatively well-trained human resources in the country ;
- English/French bilingualism in the country ;
- strategic position and economic performance of the country in the sub-region ;

- cultural diversity ;
- political stability ;
- attractive investment charter ;
- existence of resource mobilisation instruments (audiovisual tax, telecommunications development fund) ;
- emergence of a dynamic private sector ;
- existence of a policy on ICT mainstreaming in education;
- existence of a telecommunications development strategy plan ;
- active participation and interest of donors to contribute to the bridging of the digital divide and regional disparities.

2.8.2. Weaknesses

Generally, the development of ICTs in Cameroon is constrained by:

- obsolete infrastructure ;
- ill-adapted legal, regulatory and institutional framework ;
- insufficient quantity and quality of human resources in ICT professions ;
- little coordination among various stakeholders ;
- non-optimal allocation and use of ICT-related resources;
- lack of a specific policy to put in place special infrastructure and instruments for Internet development.

2.8.3. Constraints

Environmental constraints on ICT development in Cameroon include:

- insufficient quantity and quality of energy supply ;
- poverty among the population ;
- weak national industrial base.

POLITICAL VISION

The mainstreaming of Cameroon in the emerging world information and knowledge society stands as a national priority and a major challenge for the country's future. Accordingly, the Government intends to use information and communication technologies as one of the enablers to transform the country into an information and knowledge based society in which individuals, communities, corporate bodies and administrative services make full use of the Internet and other ICT services to facilitate and accelerate the socio economic development of the country.

The Government is therefore committed, with the support of all other partners, to creating an appropriate environment for the development of the Internet and other information and communication technologies in Cameroon. This will be done by:

- extending access to information and communication technologies to all sectors, social segments and regions of the country ;
- developing ICT infrastructure through the installation of a reliable, high capacity telecommunication backbone infrastructure which will enable not only coverage of the whole country, but also speeding up of the integration of ICTs in social and economic development by transforming the country into an information and knowledge-based society ;
- promoting innovative and indigenous ICT usage to render national enterprises and the country more productive and competitive ;
- building national capacities to produce and distribute ICT products and services in the economic and cultural sectors.

The Government is aware that at the current state of the country's development, the achievement of the above goals will necessitate:

- setting up of an appropriate environment for infrastructural, legal, regulatory, institutional and human development to foster the development, deployment and utilisation of information and communication technologies in the economy and society ;

- reducing disparities between entities (geographic, gender, socio-economic, etc.) in the access to information and communication technologies ;
- providing assistance to individuals, communities and institutions to acquire equipment;
- reforming State services through the mastery of information and communication technologies by government officials;
- disseminating ICT usage in the society and economy ;
- developing an industrial-base ICT sector with viable services;
- clearly defining the roles and responsibilities of the various stakeholders.

GUIDING PRINCIPLES

The implementation of the provisions of this Policy shall be guided, among other things by the ***right of access to information, transparency, fairness and accountability***. Seven principles underpin actions carried out within the context of the strategy proposed:

(a) Reduction of all types of disparities (equality and equity)

The reality about the right to information, presupposes that the State will ensure a universal access to ICTs through an effective ICT popularisation plan. Measures to be taken to foster equality and equity require a positive discrimination (affirmative action) in resource allocation. As such, special attention should be paid to issues such as gender balance, persons from poor backgrounds, location and content diversification according to individual needs and means.

(b) Respect for rights and freedoms

While acknowledging the principles of universal, non-discriminatory access to ICTs for all social segments of the Cameroonian society, the State should ensure that ICTs are not used for incompatible purposes with respect to individual and community rights.

(c) Liberalisation of offer

The Government of Cameroon guarantees the right (for private organisations, individuals, local authorities and any other entity with means) to set up and manage profit-making or non-profit structures, based on their own principles, and in accordance with the laws and regulations in force. The State should encourage the development of the private sector within the framework of a common national strategy.

(d) Efficient and well coordinated partnership

In a bid to create or strengthen an attractive environment, the Government of Cameroon will foster a broad-based, efficient and a well managed partnership so that resources of all types possessed by various actors and partners (local authorities, NGOs, enterprises and individuals) can be invested hitch-free in the development of ICTs.

(e) Accountability (transparent and efficient management)

Not only will the various levels of power, whether decentralised or de-concentrated, be made responsible, but also the accountability and transparency of the efficient management of resources earmarked for ICT development will become the working principle. The real impact of the management of educational activities will be assessed through the behaviours of individual learners, families and the community at large.

In the quest for participatory management of ICT development, communities (village development committees, elite associations, trade unions, regional and local authorities, enterprises, NGOs, etc.) will be expected to assume responsibility for the development of ICTs in their areas.

(f) Enhanced de-concentrated/decentralised management

De-concentrated or decentralised management is indispensable within the context of regionalisation where local authorities have to properly oversee the development of basic infrastructure by virtue of the powers conferred on them by law. To ensure that grassroots needs are better taken into account, the Government will enhance delegation of power from the centre to decentralised structures.

(g) Cost control

The guiding principles for proper management at all levels will be the rational use of available resources, in a bid to avoid waste by adopting an objective criteria for allocating resources to the various structures thus combating corruption and improvisation.

Chapter 3: POLICY PRIORITIES – THE 12 PILLARS

In view of the status of information and communication technologies and of Cameroon's level of development, the priority areas for the development of these technologies are:

- developing human resources;
- improving the legal, regulatory and institutional framework;
- enhancing the rule of law and sovereignty;
- developing telecommunication infrastructure;
- developing networks and the Internet ;
- using ICTs to develop social sectors;
- modernising the public sector;
- developing an ICT industrial and services sector;
- promoting a competitive economic sector;
- valorising and promoting scientific, cultural and economic heritage of the country
- intensifying cooperation and establishing partnership;
- controlling costs and financing.

3.1. Developing human resources

It is acknowledged that, the most important asset for a country in a knowledge-based economy and society is the quality of its human resources. At the moment, Cameroon is experiencing an acute shortage both quantitatively and qualitatively of her human resources in the technical and managerial domains, in general, and in information and communication technologies, in particular. In fact, with less than 10% of its working population in professional areas, it is clear that huge resources need to be invested by Cameroon to speed up the training of professionals required to fill the country's current science and technology gap.

Specifically, in the field of ICTs Cameroon, like most other countries, lacks the quantitative and qualitative minimum of experts required to develop and deploy ICTs in both the public and private sectors. This shortage of national ICT expertise is one of the main factors which inhibit ICT development in the country. Cameroon, like most developing countries needs to develop and deploy the required human resources in key areas in order to transform the economy into a predominantly information and knowledge-based society.

Consequently, the Government believes that the youths of Cameroon, about 60% of whom are below 25years, need to be transformed, by inculcating new values, aptitudes and skills, into them as a vector for transforming the country into an information and knowledge-base economy and society.

Political commitment:

The Government has undertaken a commitment to facilitate and accelerate the implementation of a programme for developing human resources in ICTs, which is intended to provide necessary skills for the key sectors of the society and economy.

Objectives and strategies

Objectives:

- To facilitate the implementation of a comprehensive human resource development plan, focusing on key sectors of the economy that require critical skills in ICT;
- To facilitate the development of ICT skills in both public and private sectors in order to adapt to the ever-changing ICT environment;
- To upgrade the professional status of ICT specialists;
- To manage available human resources efficiently.

Strategies:

- Develop ICT awareness programmes;
- Provide ICT equipment to training institutions;
- Develop ICT training programmes for teachers of ICTs;
- Encourage and promote the setting up of pertinent training courses for ICT specialists needed in industry;
- Increase opportunities for continuing training in the area of ICTs.

3.2. Improving the legal, regulatory and institutional framework

The formulation and implementation of a suitable legal, regulatory and institutional framework will foster the development of a local information and communication technologies sector. This will further create a competitive environment for developing and providing communication services, stimulating innovations, creating a cost-reduction framework and diversifying consumer choices.

It has been recognised that the current legal, regulatory and institutional framework, which was put in place mainly to manage the transition from a State monopoly to an era of competition, focuses on creating an environment for competition and protection of the rights of newcomers. The Government is aware of the need to periodically review the laws, regulations and institutional machinery to take into account the rapid advances in technology occurring in the domain as well as trends in user needs.

The convergence of technologies and information services in telecommunication, information management, broadcasting which constitutes ICTs and the impact of these technologies on the delivery of social and economic products and services at all levels of the society must be taken into consideration when drafting legal instruments.

The idea here is to put in place a dynamic and flexible legal, regulatory and institutional framework which strengthens competition in the sector, guarantees continued protection for human rights and ensures that the principle of universal access and service is reinforced.

Political commitment:

The Government undertakes to promote the setting-up an open and transparent, legal, regulatory and institutional framework which is intended to promote competition and innovation in the ICT industry as well as facilitate Cameroon's integration into the information and knowledge-based society.

Objectives

- To facilitate the formulation and speedy implementation of a legal and regulatory framework which permits the creation of an attractive environment and offers incentives for investment and innovation in the ICT sector;
- To strengthen Internet governance;
- To incorporate into existing regulations current concerns relating to intellectual property rights, data protection and security, access to information, and repression of cyber crime as well as other ICT-related offences;
- To address ethical aspects of the digital culture and protecting the rights of children;
- To clarify the roles of the various institutional stakeholders;
- To establish norms and procedures which permit economic operators and other social actors to more effectively contribute to ICT development in the country.

Strategies

- adapt the national legal and regulatory framework, so that (i) it is consistent with the laws, regulations, technical standards as well as international and national commitments, (ii) it seeks technological neutrality and (iii) it promotes the convergence of markets;
- improve the management of the frequency spectrum;
- optimise regulation in the sector by setting up an arbitration mechanism for resolving conflicts between operators and regulators;
- constant consultations between the various institutional actors of the sector.

3.3. Enhancing the rule of law and sovereignty

Information and communication technologies have a great potential which could enable the country to improve population management, to curb unruly conduct of citizens that can jeopardises the rule of law, and to combat highway robbery. ICTs equally play a vital role in preserving Cameroon's sovereignty and in reinforcing the spirit of citizenship.

Political commitment:
The Government undertakes to develop ICT usage in a bid to further entrench the rule of law in Cameroon and reinforce its sovereignty.

Objectives

- To raise the level of citizen involvement in the life of the nation;
- To improve on the level of protection of persons and goods;
- To wage an efficient war against cyber crime;

- To reinforce the collection, storage, treatment and secure dissemination of data on the management of demographics, national heritage;
- To increase access by all to fair and diligent justice.

Strategies

- Develop an information system which includes information on data on civil status, police records and citizen identification;
- ensure the computerisation of judicial processes nationwide;
- encourage and promote the computerisation of the electoral process;
- encourage electronic surveillance of public places and highways;
- promote relevant usage of ICTs within services of the forces of law and order, justice and defence ;
- reinforce the human and material resources of the forces of law and order in combating cyber crime;
- put in place Geographic Information Systems (GIS).

3.4. Telecommunication Infrastructure development

The diagnosis revealed that the national ICT infrastructure is virtually obsolete. However, it is obvious that the deployment and utilisation of reliable telecommunications infrastructure is a prerequisite for ensuring sustainable development in the country. Thus, connectivity plays a central role in building an information society. Ensuring universal, equitable and affordable access to ICT infrastructure and services constitutes a major challenge to Cameroon.

The telecommunications development strategy designed by MINPOSTEL sets the following quantitative objectives:

- To raise fixed and mobile phone teledensities from less than 1% and 12% respectively to 30% and 50% respectively by 2015;
- To achieve 100% radio and television coverage;
- To raise the Internet usage rate from less than 1% today to 40% by 2015 ;
- To install modern communications equipment in about 20,000 villages.

Political commitment:

The Government undertakes to implement special measures and incentives for the rehabilitation, expansion and maintenance of telecommunications infrastructure in a bid to improve ICT access and quality of services.

Objectives

- To rehabilitate and expand the fixed telephony network infrastructure;
- To ensure that the network is geographically distributed;
- To extend national coverage for mobile telephony;
- To reduce the cost of communications and ICT terminals;
- To implement an effective infrastructure maintenance policy.
- To ensure the availability of electric power in all parts of the country.

Strategies

- put in place a reliable, high capacity telecommunications backbone infrastructure which links up all administrative headquarters;
- provide support for connecting rural, under served or remote areas;
- develop community access;
- extend national coverage of public and private postal services;
- share common infrastructure and sites ;
- involve communities, local and regional authorities in setting up and maintaining access networks ;
- seek alternative technologies for the development of networks;

3.5. Networks and Internet development

The available network infrastructure for developing the Internet is relatively inadequate and inappropriate for ensuring a real expansion of Internet services. By and large, most of the available networks are constructed independently without broad-based consultations resulting in duplication of actions, which may lead to incompatible of technologies and hence hinder interoperability of the networks.

Political commitment:

Government undertakes to expand telecommunications and internet networks in view of covering the entire territory using broadband infrastructure, which is capable of handling the local and international traffic.

Objectives

- To develop a broadband network infrastructure on a national scale ;
- To improve access to ICT products and services;
- To minimise duplication and costs through infrastructure sharing between the public and private sectors.
- To ensure an integrated approach to the development and deployment of ICTs including other supporting infrastructure such as road and electricity network.

Strategies

- Put in place appropriate legislation to regulate the provision of internet services;
- Set up an Internet Exchange Point (IXP);
- establish a common network for government departments and services;
- ensure Internet governance.

3.6 Using ICTs to develop social sectors

Statistics indicate that ICT usage both within the public and private sectors is relatively low. Quite often, the inability to distinguish between office automation services and computer services and to a larger extent, ICTs, has led to a common view which demonstrates that there is a poor understanding of ICT potential and benefits. This misunderstanding coupled with the

relatively low ICT usage by the population, invariably accounts for the inertia often decried by the Head of State and constitutes a hindrance to combating poverty and to modernising the Cameroon society.

Political commitment:
Government undertakes to develop all social sectors through the promotion and integration of ICTs in social and cultural habits of the people to ensure an improvement in their quality of life.

Objectives

- **Health**:
    - To use ICTs to facilitate the improvement of the health situation of the population;

- **Agriculture and rural development :**
    - To improve agricultural production and enhance rural development;
- **Education, teaching, vocational training and research**
    - To enhance quality and increase access to education, training and research through the use of ICTs;
- **Social actions**
    - To use ICTs to ameliorate the quality of life of the entire population.

Strategies

- Provide training for teachers and health professionals in ICT usage;
- Promote new and innovative forms of teaching and learning (e-learning, telemedicine);
- Promote high-capacity, reliable and cheap connection for all schools, universities and research institutions;
- Provide support to ICT research and development as well as monitoring scientific and technological evolution;
- Promote the training of women, persons with disabilities and vulnerable groups in aptitudes, skills and competences in the economy and knowledge-based society;
- Sensitise consumers to their rights and duties;
- Train the Gendarmerie and Police forces as well as employees of the Justice system (magistrates, lawyers) on the stakes and challenges of a knowledge-based society;
- Encourage Cameroonians to adopt ICTs in their daily activities.

3.7. Modernising the Public Service

A major priority of government policy is modernising the administration. This policy deals with issues of efficient administration (good governance), imminent decentralisation and citizen involvement in the decision-making process. Information and communication technologies offer very bright prospects for modernising government services, either in terms of improving relations with citizens, public and private enterprises or increasing the efficiency of its internal operation.

Information and communication technologies thus give room for envisioning new modalities for making information available to the public in cost-effective digital format. They offer new possibilities of performing administrative tasks (e-work, e-transactions) and thus eliminate the constraints of working hours in public offices and geographical distances.

Political commitment:

The Government intends to accelerate Cameroon's entry into the information society by encouraging large-scale use of ICTs within the administration.

Objectives

- To modernise the functioning of the administration ;
- To improve the quality of service delivery to the public;
- To encourage the adoption of ICTs by government workers;
- To promote the practice of online administration;
- To issue new rules for information processing;
- To improve citizens' access to public information.

Strategies

The following strategies will be implemented:

- Provide ICT equipment to government services;
- Develop online government services;
- Train and guide government workers on the use of ICTs;
- Develop telecommunication networks at all levels of the administration.
- Develop information systems for the collection and dissemination of government data;
- Build on and generalise success stories;
- Increase the number of public access points within the administration;
- Develop digital storage systems (archives);

3.8. Developing an ICT industrial and services sector

The goals pursued by this policy on the promotion of creativity and innovation in industry are essentially three-fold:

- Ensure the endogenous and sustainable development of Cameroon. In other words, providing Cameroon with relevant instruments for mastering and improving its general environment;
- place Cameroon's development on the rails of an information and knowledge based society;
- Transform the economy of Cameroon from a natural resource base economy to an information and knowledge based economy.

Political commitment:

Government undertakes to encourage the endogenous development of ICT industries and services sector in a bid to steer the nation into an information society and hence ensure a sustainable economic and industrial development base.

Objectives

- To create a favourable environment for developing industries specialised in the production of multimedia contents and applications ;
- To promote an enabling environment for investors, notably those who offer to produce technologies locally;
- To reinforce the framework for developing audiovisual production industries;
- To implement frameworks for developing e-applications such as: e-education, e-health, e-agriculture, e-tourism etc.

Strategies

- Formulate an industrialisation plan on technological development;
- Ensure a balanced national development plan: roads, energy, health, universal access to telecommunications;
- Create ICT development poles;
- Partner with the private sector and other stakeholders in order to develop the ICT industrial and services sector;
- Develop appropriate human resources required to stimulate the growth of this sector;
- Encourage the protection of intellectual property rights so as to promote investment in the sector.

3.9. Promoting a competitive economic sector

The opportunities offered by ICTs on financial and human resources management should be exploited by enterprises to enhance productivity and competitiveness in such a highly dynamic economic sector

Political commitment:

Through the integration of ICTs in this sector, the Government undertakes to promote a competitive economic sector by creating an attractive environment (affordable tax rates, security of goods and services, financing SMEs/SMIs, etc.)

Objectives:

- To generalise the use of ICTs to strengthen the competitiveness and profitability of enterprises in Cameroon;
- To encourage the use of ICTs in commercial transactions.

Strategies

- Raise ICT awareness and provide support services to Enterprises;
- Provide incentives for adopting ICTs (Tax reduction, financial support to SMEs/SMIs);
- Provide support for human resource development;
- Promote electronic commerce;
- use ICTs to systematically collect, store and disseminate information on agriculture, livestock, fishery, tourism etc., in order to facilitate access to full, updated and detailed knowledge by SMEs/SMIs, especially those located in rural and under served areas.

3.10. Valorising and promoting scientific, cultural and economic heritage of the country

The goals pursued by this policy on valorising the cultural diversity and assets in Cameroon include:

- use ICTs to promote the nation's cultural values on the international scene;
- position Cameroon among the leaders in this new economy wherein social and cultural diversities are major factors for promoting wealth innovation and creativity
- Encourage and promote the computerisation of Cameroonian languages and cultural heritage.

Political commitment:

Government undertakes to promote the cultural heritage, with a view to positioning the nation among the leading nations wherein social and cultural diversities become determinants of innovation and creativity.

Objectives

- To encourage the development of content in national languages in a bid to make Internet services more user friendly;
- To develop the full potential of youths, women and minority groups, such as pygmies, so as to enhance socio-cultural diversity.
- To use ICTs to identify, develop and protect the full potential of the nation's cultural heritage.

Strategies

- Formulate a short, medium and long term policy for collecting, storing and developing Cameroon's cultural heritage;
- Formulate a short, medium and long term policy for disseminating the nation's cultural heritage through educative and communicative processes;
- Encourage the use of ICTs to promote various aspects of the nation's culture;
- Strengthen the capacities of libraries, museums and other cultural institutions to enable them fully play their role as content providers.

3.11. Intensifying cooperation and establishing partnerships

The Government of Cameroon is convinced that through cooperation and partnerships with the private sector, civil society, development partners, as well as friendly countries, the country could achieve the objectives set within the framework of this policy. The Government therefore undertakes to promote dialogue with all stakeholders in pursuit of aforementioned goal.

Political commitment:

Government undertakes to strengthen its cooperation and partnerships by developing and implementing adequate and relevant legislation in the area thus creating a favourable environment that encourages investors and reassures key partners and donors.

Objectives

- To encourage the emergence of a people-centred, inclusive and development oriented information society
- To put in place a framework for concerted action by major stakeholders in the ICT domain.

Strategies

- Ensure Cameroon's presence at sub-regional, regional and international forums on ICT related issues;
- Develop cooperation ties with all national and international institutions which deal with ICT related issues;
- Develop cooperation between various national players in the ICT sector (civil society, private sector);
- Promote periodic meetings between stakeholders in the ICT sector;
- Participate actively in setting up regional and sub-regional projects.

3.12. Controlling costs and financing

The Implementation of this policy requires considerable financial resources which will necessitate the mobilisation of finances from all existing and potential funding agencies.

Political commitment:

Government undertakes to promote the rational and controlled management of financial resources at all levels of the administration, through the effective use of ICTs. It will ensure that, projects initiated by any State institution should be preceded by feasibility studies to be eligible for financing. In addition regular audits will be carried out during the implementation phase of the projects.

Objectives

- To create a framework for financing activities in the ICT sector;
- To facilitate access to financing;
- To mobilise financial resources at national and international level for implementing this policy;

- To centralise resources allocated to the development of the ICT sector.

Strategies

- seek membership of the World Digital Solidarity Fund;
- organise consultations with development partners on the implementation of this policy;
- establish effective partnerships between the public and private sectors and civil society for the harmonious development of ICTs;
- Encourage an integrated approach towards the financing of high capacity telecommunication infrastructure using HIPC funds
- use PIB resources to finance the implementation of each institution's ICT master plan.

3.13. Summary tables of the strategy

1. Develop human resources

DESCRIPTION	IMPLEMENTATION DEADLINE	INDICATORS	STAKEHOLDERS
Objective 1 : To ensure the training of ICT specialists in key sectors of the economy			
Action 1.1 Creation of fields of study for ICT specialists in key sectors of the economy		- Number of fields - Number of certificate holders by economic sector	- MINESUP - MINEFOP - Universities - Training institutions
Action 1.2 Preparation of a strategic plan for developing ICT human resources		- Availability of the strategic plan for developing ICT human resources.	- NAICT and all ministries
DESCRIPTION	**IMPLEMENTATION DEADLINE**	**INDICATORS**	**STAKEHOLDERS**
Objective 2 : To build the country's capacities in training, and research and development to meet requirements for developing Cameroon's information and knowledge-based economy and society			
Action 2.1 Strengthen R&D and deploy ICT to the socio-economic sectors.		An increase in the number of centres and institutes for R&D.	- MINESUP - MINRESI - Universities - Research institutes
Action 2.2 Build capacities of universities for training ICT teacher/scientists		Number of university lecturers trained	- MINESUP - MINPOSTEL - MINFOPRA
Objective 3 : To facilitate the evolution and adaptation of ICT skills in the public and private sectors			
Action 3.1 Encourage the training and retraining of persons in active ser-		Number of persons in active	- All public and private institutions

vice		service retrained	
Action 3.2 Assess the evolution and adaptation of skills in public administration		Number of training curriculum adapted to current ICT context	- MINFOPRA - MINPOSTEL - MINCOM - MINATD
DESCRIPTION	**IMPLEMENTATION DEADLINE**	**INDICATORS**	**STAKEHOLDERS**
Objective 4 : To upgrade the professional status of ICT specialists			
Action 4.1 Create ICT specialist career profile.		Availability of Career profile document.	- MINFOPRA - MINESUP - MINFI
Action 4.2 Draft rules and regulations for ICT professionals		Availability of rules and regulations for ICT professionals	- MINFOPRA - MINESUP - MINFI
Action 4.3 Design a national strategy on continuing training for ICT professionals		Availability of a national strategy on continuing training for ICT professionals	- MINFOPRA - MINESUP - MINFI
Objective 5 : To use available human resources effectively			
Action 5.1 Encourage the training of women, persons with disabilities, and vulnerable groups to acquire aptitudes, skills and competences required in a knowledge-based economy and society		Proportion of vulnerable persons and women who have received ICT training	- MINAS - MINEDUB - MINESEC - MINESUP - MINEFOP
Action 5.2 Improve the geographic distribution of qualified personnel		Proportion of national territory covered by qualified ICT personnel and specialists	- MINATD, MINESUP, MINCOM, MINPOSTEL, MINEFOP

2. Improve the legal, regulatory and institutional framework

DESCRIPTION	IMPLEMENTATION DEADLINE	INDICATORS	STAKEHOLDERS
Objective 1 : To develop and implement a legal and regulatory framework which allows for the creation of an attractive environment and offers incentives for investment and innovation in the ICT sector in a bid to improve access and service quality			
Action 1.1 Adapt the national legal and regulatory framework, so that (i) it is consistent with the laws, regulations, technical standards as well as international and national commitments, (ii) it seeks to ensure technological neutrality and (iii) it promotes the convergence of markets		Number of administrative instruments reviewed and amended	MINJUSTICE, PRIME MINISTER'S OFFICE, NAICT, NATIONAL ASSEMBLY, MINFI
Action 1.2 Put in place regulations and incentives to promote electronic commerce		Number of incentives to promote electronic commerce put in place	MINJUSTICE, PRIME MINISTER'S OFFICE, NAICT, NATIONAL ASSEMBLY, MINFI
DESCRIPTION	**IMPLEMENTATION DEADLINE**	**INDICATORS**	**STAKEHOLDERS**
Objective 2 : To strengthen Internet governance			
Action 2.1 Improve the management of the frequency spectrum		Drop in number of pertinent customer complaints	NAICT, MINCOM, MINPOSTEL, ART

Action 2.2 Set up an IXP		Reduction in cost of communication Improvement in data transmission rate Improved quality of service	MINPOSTEL, NAICT, MINCOM
Action 2.3 Set up of an Internet governance forum.		Forum created	PR, NAICT, MINPOSTEL, MINCOM
Objective 3 : Create a legal environment conducive to the development of an information and knowledge-based economy			
Action 3.1 Incorporate into existing legislation, the current concerns relating to intellectual property rights, data protection, security, access to information, cyber crimes and other ICT related offences		Provisions on intellectual property rights have been included in existing regulations	MINJUSTICE, NATIONAL ASSEMBLY, NAICT, AIPO
Action 3.2 Set up a national consultative committee on the information and knowledge-based society		A national consultative committee on the information and knowledge-based society is set up	PR, NAICT
Objective 4 : To address ethical aspects of the Information society			
Action 4.1		Number of seminars and other related	MINCOM, NAICT, NCHRF,

Raise awareness of the various ICT stakeholders on ethical exigencies		events organised.	
Action 4.2 Formulate and disseminate ICT codes of ethics		Number of procedures designed and disseminated Number of meetings and sensitisation seminars	NAICT, NCHRF, MINPOSTEL, MINCOM
Objective 5 : To clarify the roles of the various institutional actors			
Action 5.1 Optimise the regulation of the sector by instituting an arbitration mechanism for resolving conflicts between operators and regulators		Arbitration mechanisms between regulators and operators have been formulated and implemented	NAICT, MINPOSTEL, PR, MINCOM
Action 5.2 Set up permanent frameworks (platforms) for concerted action between the various institutional actors of the sector		Number of platforms set up and functioning effectively	All ministries
Objective 6 : To put in place norms and procedures which enable economic operators and social actors to contribute more effectively to ICT development in the country			
Action 6.1 Formulate conducive norms and procedures		Number of texts formulated	NAICT, MINPOSTEL, MINCOM
Action 6.2 Prepare a special charter for ICT economic operators		The formal document for operators in the ICT sector has been	NAICT, MINPOSTEL, MINCOM, ART

		drafted and implemented	

3. Enhance the rule of law and sovereignty

DESCRIPTION	IMPLEMENTATION DEADLINE	INDICATORS	STAKEHOLDERS
Objective 1 : To improve on the participation of citizens in the life of the nation			
Action 1.1 Computerise the electoral process		Computer system for managing the entire electoral process is available	- MINATD - ELECAM - NAICT
Objective 2 : To improve on the security of persons and property			
Action 2.1 Implement the electronic surveillance of public places and highways		Number of public places and highways under electronic surveillance	- MINDEF - MINDUH - MINTRANSPORT - DGSN
Objective 3 : To wage an effective war against cyber-crime			
Action 3.1 Reinforce the human and material resources of the forces of law and order for combating cyber crime		- Number of employees of the forces of law and order trained in cyber-crime - Number of senior judicial officials and officers trained in cyber-crime - Number of institutions offering training in cyber crime - Number of institution	- MINDEF - MINJUSTICE - MINADT - DGSN - University institutes and law schools

		(defence, security and justice) provided with cyber-crime combating material.	
Objective 4: To reinforce the collection, storage, processing and secure dissemination of data on population, territorial and national heritage management.			
Action 4.1 Create an information system on the civil status registry, police records and citizens' identification.		Information system available	- MINDEF - MINJUSTICE - MINADT - DGSN - NAICT
Action 4.2 Establish a geographic information systems		Geographic Information System available	- MINRESI - MINEP - MINFOF
Objective 5 : To improve access to fair and diligent justice			
Action 5.1 Computerise judicial processes nationwide.		Information system on judicial processes available	- MINJUSTICE - NAICT

4. Improve Telecommunication infrastructure

DESCRIPTION	IMPLEMENTATION DEADLINE	INDICATORS	STAKEHOLDERS
Objective 1 : To rehabilitate fixed telephony infrastructure			
Action 1.1 Analyses of current situation		Report on current situation analysis available.	MINPOSTEL, NAICT, MINCOM, ART

Action 1.2 Rehabilitate the fixed telephony infrastructure		Percentage of fixed telephony infrastructure rehabilitated	MINPOSTEL, NAICT, MINCOM,
Objective 2 : To expand the fixed telephony network infrastructure			
Action 2.1 Establish fixed telephony network coverage map		Fixed telephony network coverage map is available	MINPOSTEL, NAICT, MINCOM, MINADER
Action 2.2 Cover underserved areas with fixed telephony network		Percentage of underserved areas covered	MINCOM, NAICT, MINCOM, MINADER
Objective 3 : To enhance the geographic balance of the network			
Action 2.1 Put in place a reliable, high-capacity telecommunications back-bone infrastructure linking up all divisional headquarters		Reliable, high-capacity telecommunications backbone infrastructure is available.	MINPOSTEL, MINCOM, NAICT
Action 2.2 Develop community access points		Number of Community access points constructed	MINPOSTEL, MINCOM, NAICT, MINADER, MINATD
Action 2.3 Sharing of common network infrastructure and sites		Number of common network infrastructure and sites shared by operators.	NAICT, MINPOSTEL, MINFI, MINATD, MINADER, MINEPAT
Objective 4 : To extend mobile telephone network coverage nationwide			
Action 3.1 Increase network coverage in rural, under served and remote areas		Proportion of rural, underserved and remote areas covered by mobile telephone services	MINPOSTEL, NAICT, MINCOM, ART, MINADER

Objective 5 : To reduce the cost of communication and ICT products			
Encourage the setting up of multiple mobile network operators with diversified products and services.		Number of operators available.	MINPOSTEL, MINCOM, NAICT, ART, PRIVATE OPERATORS
Reduce tax and tariffs on end-user consumer ICT products		Relevant text available	MINPOSTEL, MINCOM, ANTIC, MINFI, MINCOMMERCE
Multiply access points and terminals		Number of access points and terminals created	MINPOSTEL, MINCOM, NAICT
Objective 6 : To develop an effective infrastructure maintenance policy			
Action 6.1 Involve communities, local and regional authorities in setting up and maintaining access networks		Proportion of communities, local and regional authorities involved and trained in ICT infrastructure maintenance	NAICT, MINATD, MINADER, MINESUP, MINPOSTEL, MINEPAT
Action 6.2 Formulate a national ICT infrastructure maintenance strategy		ICT infrastructure maintenance strategy available	NAICT
Action 6.3 Train specialists in ICT infrastructure and equipment maintenance		Number of maintenance specialists trained	NAICT, MINPOSTEL, MINESUP
Objective 7 : To make electric power accessible nationwide			
Action 7.1 Construct new electric power plants		Number of new electric power plants constructed	MINEE, MINRESI, AES SONEL, MINFI

Action 7.2 Provide sensitive structures with alternative energy sources		Number of sensitive structures with alternative energy sources	Each ministry

5. Develop networks and the Internet

DESCRIPTION	IMPLEMENTATION DEADLINE	INDICATORS	STAKEHOLDERS
Objective 1 : To develop broadband network infrastructure nationwide			
Action 1.1 Put in place a telecommunications backbone and last mile connectivity infrastructure.		**Backbone and last mile connectivity infrastructure available**	MINPOSTEL, MINCOM, NAICT
DESCRIPTION	**IMPLEMENTATION DEADLINE**	**INDICATORS**	**STAKEHOLDERS**
Objective 2: To develop national and regional network interconnection nodes.			
Action 2.1 Commit ICT actors to put in place national and regional access points (Internet Exchange Point)		Number of national and regional access points (IXP) put in place	NAICT, ART

6. Develop the social sector through the use of ICTs

DESCRIPTION	IMPLEMENTATION DEADLINE	INDICATORS	STAKEHOLDERS
Objective 1 :To use ICTs to improve the health situation of the population			
Action 1.1 Draw up a master plan for ICT development, deployment and exploitation in the health sector		A master plan for ICT development, deployment and exploitation in the health sector available	MINSANTE

Action 1.2 Promote medical computing and telemedicine		Medical computing and telemedicine are effective	MINSANTE
Action 1.3 Train health professionals in ICT usage		Number of health professionals trained in ICT usage	MINSANTE, MINESUP
Objective 2 : To improve agricultural production and rural development			
Action 2.1 Set up a technological network for disseminating agricultural information and technologies		Number of agricultural information and innovative techniques disseminated through a network	MINADER
Action 2.2 Generalise access to ICTs in rural areas through new technologies like wireless broadband		Number of villages provided with wireless broadband	MINADER
Action 2.3 Train agricultural specialists in the use of ICTs		Number of specialists trained	MINADER, MINESUP, MINEDUB
Action 2.4 Develop a surveillance/warning system for rural areas using national languages		The Warning system is available	MINADER, MINEPAT, MINATD, NAICT
Objective 3 : To use ICTs to improve quality and access to education, training and research & Development			
Action 3.1 Develop distance training, particularly in higher education and vocational training		Number of distance training centres created	MINEDUB, MINESEC, MINESUP, MINEFOP

Action 3.2 Build teachers' ICT capacities		Number of teachers trained in the use of ICTs	MINEDUB, MINESEC, MINESUP, MINADER, MINEPIA
Action 3.3 create multimedia resource centres in university institutions, as well as public and private establishments		Number of multimedia resource centres created	MINESUP, MINESEC, MINEDUB, MINCOM
Action 2.4 Create a national education database		Database created	MINEDUB, NAICT
Objective 4 : Use ICTs to improve social life			
Action 4.1 Put in place specific programmes which take into account gender issues and disadvantaged groups		Number of specific programmes available.	MINAS, MINPROFF
Action 4.2 Train support staff to facilitate access to community tele-centres		Number of support staff trained in management of community telecentres	MINAS, MINPROFF
Action 4.3 Equip community telecentres with ICT infrastructure		Number of telecentres equipped	MINAS, MINPROFF, MINFI, NAICT

7. Modernise the Public Service

DESCRIPTION	IMPLEMENTATION DEADLINE	INDICATORS	STAKEHOLDERS
Objective 1 : To promote online administration			

Action 1.1 Develop networks in state institutions, local and regional authorities		Number of networks created within the various government departments	MINPOSTEL MINCOM, NAICT, MINATD
Action 1.2 Develop information management systems in state institutions, local and regional authorities		Number of information management systems developed .	MINPOSTEL, MINCOM NAICT, MINATD
Objective 2 : To facilitate the introduction of ICTs and promote its utilisation by State employees			
Action 2.1 Develop ICT master plan for ministries		Number of ministries with ICT master plan available.	Each ministry, NAICT
Action 2.2 Equip government services with ICT equipment and infrastructure Equipment of government services		Percentage of government services equipped with ICT equipment and infrastructure	NAICT, MINFI, each ministry
Action 2.3 Train State employees on the use by ICT		Number of State employees trained.	NAICT, MINEPAT, MINESUP, MINFPRO
Objective 3 : To improve citizens access to public information			
Action 3.1 Provide online services to the public		Online services operational	MINFOPRA, MINATD, MINFI, NAICT
Action 3.2 Disseminate essential public data systematically		Proportion of public data disseminated	All ministries, NAICT
Objective 4 : To develop networking in government departments			

Action 4.1 Develop networks and information management systems in state institutions, local and regional authorities		Number of government departments linked by network.	All ministries, NAICT
Action 4.2 Consolidate inter-university telecommunications network (RIC)		Inter-university telecommunications network available	MINESUP
Objective 5 : To draw up new rules for information processing and dissemination			
Action 5.1 Develop norms and procedures related to information collection, storage, processing and dissemination		Document on norms and procedures available.	MINFOPRA, MINATD, MINCOM
Action 5.2 Develop an application which eases the management and dissemination of information within government departments		A secure application available	PMO, PR, NAICT

8. Develop a viable ICT industrial and services sector

DESCRIPTION	IMPLEMENTATION DEADLINE	INDICATORS	STAKEHOLDERS
Objective 1 : To create a favourable environment for the development of industries specialised in multimedia contents and applications			
Action 1.1 Support local and indigenous content development as well as the promotion of Cameroon's languages and cultural heritage.		Initiatives and incentives put in place to support the development of local content.	MINESUP, MINCOM, MINFI, MINPOSTEL, MINCULT

Action 1.2 Develop applications targeting the collection and dissemination of local and indigenous knowledge, content and information resources.		Number of applications developed.	
Action 1.3 Protect intellectual property rights		A system for protecting intellectual property rights through ICTs available	MINCOM, AIPO, MINESUP, MINCULT
Objective 2: To create and promote an enabling environment for investors.			
Action 2.1 Develop an appropriate institutional, legal and regulatory framework to encourage investment in the ICT sector		Relevant text available	MINFI, MINEFOP, MINTESS, MINCOMMERCE
Action 2.2 Create ICT development industrial free zone		Number of ICT development industrial free zones created	NAICT, MINPOSTEL, MINCOMMERCE
Action 2.3 Formulate a national policy on the development of innovative technologies		National policy on the development of innovative technologies formulated	NAICT
Action 2.4 Develop human resources		Number of persons trained	All ministries

9. Promote a modern and competitive economic sector (production and trade)

DESCRIPTION	IMPLEMENTATION DEADLINE	INDICATORS	STAKEHOLDERS
Objective 1 : To generalise the use of ICTs to enhance the competitiveness and productivity of enterprises			

Action 1.1 Sensitise and support enterprises to adopt ICTs as working tools.		Number of seminars and workshops organised.	MINCOMMERCE, MIN INDUSTRIE
Action 1.2 Disseminate, through the use of ICTs, information on various sectors of the economy in a bid to create awareness of existing opportunities, targeting rural and underserved areas.		Number of information dissemination platforms available	MINEPIA, MINCOM, MINADER
Objective 2 : To generalise electronic commerce			
Action 1.1 Promote electronic means of payment		Legislation on ecommerce available. Number of institutions involved in electronic commerce.	MINFI, MINPOSTEL, MINCOMMERCE
Increase awareness on the benefits of E-Commerce in the country		Number of workshops, and seminars organised. Number of sensitisation programmes on the media.	
Action 1.2 Encourage and ease the use of secure e-business solutions, electronic signature, electronic procurement and payment systems to support the development of e-Commerce in the country		Regulatory system in place.	MINCOMMERCE, MINPOSTEL, NAICT

10. Develop and promote the nation's scientific, cultural and economic heritage

DESCRIPTION	IMPLEMENTATION DEADLINE	INDICATORS	STAKEHOLDERS
Objective 1: To use ICTs, to identify, develop and protect our traditional and cultural values and facilitate their use for the production of local content.			
Action 1.1		Policy document on collection and preservation of national	MINCULT, NAICT

Formulate a policy on the collection, preservation and development of Cameroon's cultural heritage		cultural heritage available	
Action 1.2 Build the capacities of libraries, museums and other cultural institutions to enable them to fully play their role of content providers		Number of libraries upgraded	MINCULT, MINEDUB, MINESEC, MINESUP
Action 1.3 Create cultural contents and applications in national languages using ICTs		Number applications developed in national languages	MINCULT, MINESUP
Action 1.4 Promote the development of value added applications and services relating to scientific, cultural and economic heritage		Number of value added applications and services created and effectively used	MINCULT, MINCOMMERCE

11. Intensify diverse cooperation and partnerships

DESCRIPTION	IMPLEMENTATION DEADLINE	INDICATORS	STAKEHOLDERS
Objective 1: To contribute actively to the emergence of an information and knowledge based society.			
Action 1.1 Intensify cooperation ties with all international institutions dealing with issues related to ICTs		Number of partnership agreements signed with international institutions dealing with ICT issues	PR, PMO, NAICT, MINREX
Action 1.2 Participate in putting in place regional and sub- regional ICT related projects		Number of regional and sub-regional projects in which Cameroon participate	NAICT

Action 1.3 Organise regular meetings between stakeholders in the ICT sector		Number of regular meetings between stakeholders organised	NAICT, MINPOSTEL, MINCOM
Action 1.4 Contribute to the World Digital Solidarity Fund		Contributions to the World Digital Solidarity Fund up to date	PR, MINFI, NAICT

12. Financing

DESCRIPTION	IMPLEMENTATION DEADLINE	INDICATORS	STAKEHOLDERS
Objective 1 : To mobilise financial resources at national and international levels for implementing this policy			
Action 1.1 Render operational the Telecommunications Development Fund		Telecommunications Development Fund operational	MINPOSTEL, NAICT, MINFI
Action 1.2 Put in place a framework for partnership between the public and private sectors for financing ICT development		Framework for partnership between the public and private sectors put available	NAICT, MINPOSTEL, PMO, MINFI
Action 1.3 Hold consultations with development partners on the implementation of the national ICT strategy		Number of consultations held with partners	NAICT, MINREX, PMO, MINFI

Chapter 4: OPERATIONAL IMPLEMENTATION FRAMEWORK

4.1. General presentation

This policy can become operational if all the stakeholders are fully involved in the ICT development process. Based on their missions they are expected to make contributions that will usher in a fresh impetus for the development of the country in general and ICTs in particular.

To overcome the social and economic challenges as well as exploit the opportunities offered by ICTs, the government is expected to make major decisions that will enable it to both implement this policy and integrate ICTs in an environment marked by fierce competition among various sectors against a background of financial constrains.

The effective implementation of the objectives of this policy will be based on an integrated, global approach characterised by coherent strategies and partnerships involving the public and private sectors as well as civil society. It assumes that the roles, responsibilities and duties of the various stakeholders should be defined a priori.

For any multi-stakeholder consultations to be meaningful, all parties involved in the process must show a high degree of commitment and also get actively involved in defining the role of ICTs in their various sectors.

It is the duty of the Government to adopt a policy that facilitates and accelerates national development through ICTs. The private sector, other key stakeholders (Parliament, civil society, scientific community, the media and regulatory bodies) and bilateral partners also have important roles to play in facilitating the effective implementation of the provisions of this ICT policy.

4.2. The Role of Stakeholders

This section gives a broad overview of the attributions of each stakeholder.

4.2.1 Parliament

The global liberalisation of telecommunications, postal and the media sectors have ushered in a new dispensation which needs to be covered by laws and regulations. Therefore, for an effective implementation of this policy, the role of parliament includes amongst other:

- adopt a relevant and adequate ICT legislation that will create a flexible and dynamic environment, favourable to the development of an information society ;
- facilitate the mobilisation of funds and approve possible funding sources towards the implementation of this policy in the public sector ;
- ensure the effective use of financial resources allocated to public institutions for the implementation of this policy ;
- ensure that good governance principles are observed and respected by the public sector in the implementation of this policy.

4.2.2 Government

The Government amongst other things is expected to show political and economic commitment, set attainable goals and take the lead in fostering the ICT development process to facilitate Cameroon's integration into the information society.

As such, the Government has the duty to create an enabling political, economic, institutional, legal and regulatory environment to guide the actions of the various stakeholders. Accordingly, Government leadership in policy matters will be central in the implementation of a coherent national strategy on ICT exploitation.

Therefore, the Government should:

- demonstrate at the highest level of the hierarchy a visionary and forward looking leadership on the implementation of this policy based on the expected objectives defined by NAICT;
- Play a leading role in ICT utilisation through the putting in place of an ambitious programme to promote the development of electronic services specifically e-government;
- develop and gradually implement ICT action plans, and incorporate the provisions of this policy in the national development and poverty reduction agendas ;
- introduce ICT programmes and projects in all sectors and earmark a corresponding share of the national budget for the financing of various ICT related projects.

The following public institutions will play a decisive role in the coordination and implementation of this policy.

4.2.2.1 Ministry of Finance

The Ministry of Finance represents the State in all semi-public corporations. Its duties further include; resource mobilisation and budget allocation amongst others.

4.2.2.2 Ministry of Posts and Telecommunications

The Ministry of Posts and Telecommunications is the supervisory authority of CAMTEL and the TRB.

4.2.2.3 Ministry of Communication

The Ministry of Communication supervises the activities of CRTV and Cameroon Tribune, and issues communication licences to private audiovisual service based operators.

4.2.2.4 Ministry of Justice

The increased penetration of ICTs in the country may have a negative impact, with adverse socioeconomic effects on the nation. Therefore, the judiciary will have to play the following roles, among others to redress the situation:

- To facilitate and accelerate the development of an efficient and effective judicial system to support the growth of the ICT sector ;
- execute ICT projects that are likely to speed up the delivery of justice for the benefit of all Cameroonians ;
- strive to build the capacities of judicial personnel in a bid to boost the ICT legal framework.

The convergence principles adopted within the scope of this policy requires a real harmonisation strategy, which involves an active participation of all stakeholders in the domain.

4.2.3 NAICT

NAICT is mainly responsible for guidance, regulation and coordination of activities in the ICT sector.

Guidance and coordination consist of harmonising various strategies in order to put in place a reliable ICT infrastructure and ensuring the proper execution of projects in compliance with national and international ICT norms and standards.

Furthermore coordination involves facilitating and supporting the harmonious development of the ICT sector through the promotion and integration of ICTs in the national development programme. Special emphasis will be laid on sectoral applications of ICTs so that individuals and the communities can derive the benefits and opportunities offered at the socioeconomic and cultural levels.

More specifically, NAICT will be responsible for:

- formulating and monitoring the implementation of the national ICT development strategy ;
- ensuring the harmonisation of technical standards, proposing technical references in order to facilitate interoperability among information systems and regulating the sector ;
- providing expertise to government services for the design and development of their technical projects ;
- coordinating the establishment and monitoring of Internet sites for the State and public institutions ;
- contributing to the technical training of trainers of State personnel in the ICT domain by making recommendations on the content of technical training courses and on the programmes of professional and competitive examinations.

4.2.4 Bilateral and multilateral partners

Bilateral and multilateral partners will play an important role in the promotion, integration and deployment of ICTs in national programmes. Since the concept of ICTs for development is a priority in national programmes prepared by some international development bodies, the Government needs to work in close collaboration with its partners so that sustainable programmes can be prepared, notably by:

- mobilising financial and technical resources needed to support the implementation of this policy ;
- harnessing the support of the partners in key areas such as education, infrastructure development and universal access to ICTs, health, governance, scientific research, trade, etc. to facilitate the implementation of this policy;
- supporting Cameroon's effective participation in international forums on ICTs for development ;

4.2.5 Private sector

As a privileged partner of Government, the private sector plays a very important role in fostering the development of an information and knowledge based society in Cameroon. In this respect, it has to serve as the cornerstone of economic development in the country by investing in the development of ICT services and infrastructure at national level as well as facilitate the mobilisation of funds for the implementation of ICT projects.

Other roles to be played by the private sector include:

- closely collaborating with NAICT to design strategies to implement this policy ;
- building local expertise for the manufacture of ICT products, and the creation of innovative services for external markets for Cameroonian exports ;
- investing in ICT projects in rural areas, underserved urban areas and under-privileged regions ;
- effectively participating in the implementation and regular review of this policy.
- lending innovative and productive support and participating in the development of a local, competitive ICT industry and, accordingly, ensuring Cameroon's effective contribution to the global economy ;

4.2.6 Decentralised services

In collaboration with NAICT decentralised services will have to closely cooperate with central administration, the private sector, civil society and other partners towards the implementation of this policy.

4.2.7 Civil society

The role of the civil society in building an information society can not be overemphasised. Civil society organisations can considerably raise the impact of government initiatives on the population, since they work closely with communities and socioeconomic groups. Consequently, they could serve as an interface between donors, government and citizens in promoting sustainable development. It can influence policy and ensure that strategies based on social justice and human development are implemented to facilitate the building of an inform-

ation society.

Civil society is urged to take initiatives that can facilitate coordination between NAICT, the private sector and other partners.

4.2.8 The media

The media (print, audiovisual) plays an important role in the nation's socio-economic development, in particular the dissemination of information. The use of ICTs in the media sector should not only be limited to the dissemination and reception of information but also to enhance their productivity. Other roles of the media include:

- Create public awareness on the existence of this policy in a bid to facilitate its implementation.
- foster partnership between various stakeholders involved in monitoring and evaluating the implementation of this policy.

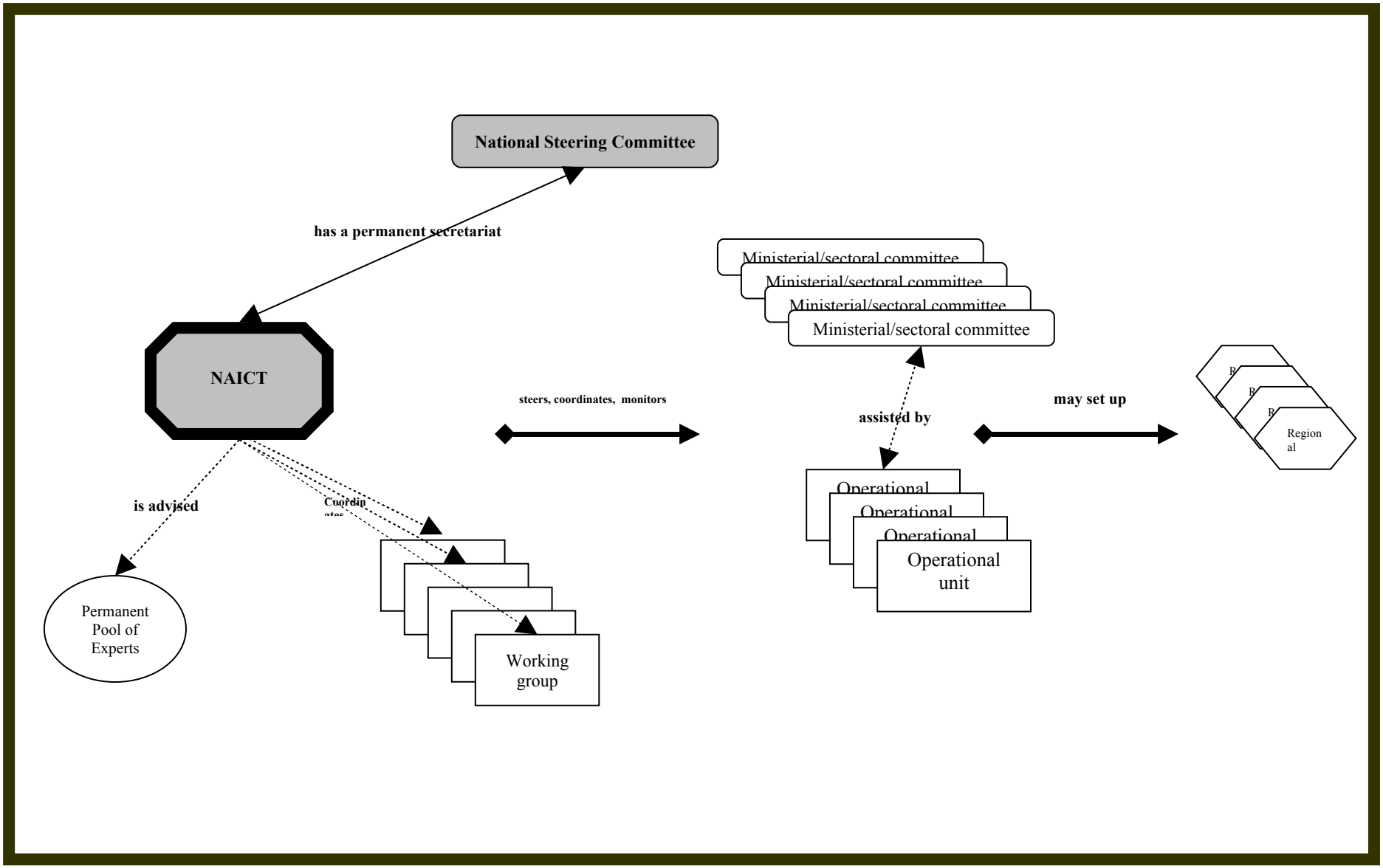
4.3. Coordination and implementation of actions of this policy

In addition to the various strategic actions and guidelines already identified, a proper and effective coordination of the various projects is a prerequisite for the successful implementation of this policy. Given the cross-cutting nature of ICTs, it is essential to put in place broad based mechanisms to facilitate the implementation of this policy. Although NAICT is the main actor in implementing this policy, it cannot single-handedly assume the responsibility for the execution of all ICT related projects. Therefore the implementation of this policy requires:

- consultation and effective involvement of all stakeholders (administration, the private sector, civil society, …) in the implementation process;
- adherence to national development goals;
- recognition of the importance of associating the rural and urban areas in developmental issues.

In implementing this policy it is essential to set up two organisational structures:

- a project supervisory and coordination committee;
- a project execution committee.


National Steering Committee
has a permanent secretariat
NAICT
steers, coordinates, monitors
Ministerial/sectoral committee
Ministerial/sectoral committee
Ministerial/sectoral committee
Ministerial/sectoral committee
assisted by
may set up
Region
al
is advised
Permanent
Pool of
Experts
Working
group
Operational
Operational
Operational
Operational
unit

Steering will devolve on NAICT (cross-cutting project) or on the stakeholder concerned (sectoral project). In the latter case, NAICT will play a coordination role by ensuring optimum use of financial, technical and human resources as well as the sound conduct of projects.

A coordination committee bringing together NAICT and representatives of the sector concerned will be set up to oversee the implementation of each project.

NAICT will propose a project management method to ensure the monitoring and steering of projects. Such method will enable better visibility of actions carried out and define the necessary reporting mechanisms.

4.4 Priorities, funding and budgets

4.4.1. Priorities

It is necessary to prioritise projects in order to facilitate planning. Such prioritisation will be done according to the impact on the country's development for 4 and 8 years, irrespective of budgets and funding prospects. Project prioritisation will be scaled from 0 (no impact) to 5 (high impact).

Projects with a high or major impact include:

- structuring projects ;
- pilot projects and initiatives with short-term outcomes ;
- preliminary phases in project launching (feasibility studies, etc. …);
- health and education sector projects.

4.4.2. Funding and budgets

The Government has to seek funding for the implementation of the Plan. Consequently, the strategy may not be implemented unless:

- the Government readjusts its budgetary options to give priority to the ICT development strategy ;
- donors lend support to finance programmes ;
- development partners accept to finance programmes ;
- the private sector, as a key partner, succeeds in mobilising resources required for investment projects.

4.5. Project management

The implementation of this policy will entail carrying out many projects whose coherence and success will require:

- a coordination committee to steer each project ;
- a uniform method to be applied in project preparation, execution, monitoring and evaluation.

This method comprises four main phases:

Phase 1: feasibility and validation - Work done during the preparation of the National Plan will be completed within this phase. It will be undertaken immediately the Plan starts and should not exceed six months.

Phase 2: coordination and preparation - Projects adopted at the first phase will be finalised, mainly by adjusting the programme and defining resources needed. Phase 2 is intended to prepare the project for integration in the strategy. The coordination committee should identify interdependent relationships among all the projects and so avoid duplicating actions and also strive to optimise resource utilisation. Planning for the implementation stages involves defining success indicators which are essential for sound project management.

Phase 3: tendering - This phase is aimed at seeking partners. The tendering phase is placed under the responsibility of the coordination committee, and is aimed at complying with the need for transparency as well as with the usual technical prescriptions for procurements secured with funding from international financial institutions.

Phase 4: project implementation – This stage involves the take-off, execution and sustenance stages. Each project will be carried out under the supervision of a project manager designated by the coordination committee. The manager will be responsible for the achievement of goals set in the project plan. He shall first and foremost serve as the interface with the coordination committee. At this phase, the coordination committee will make sure that schedules are respected, control the project through success indicators defined in the project plan and ensure that all success conditions are met (effective allocation of funds, removal of administrative, legal and political constraints, etc.) so that the project can be executed.

4.6. Operational management

4.6.1. Steering Committee

Under the authority of the **Minister of State, Secretary General of the Presidency of the Republic**, the Steering Committee will be responsible for:

- building synergy among ICT projects carried out by various ministries involved, on the one hand, and among development partners on the other hand;
- monitoring the fulfilment of commitments made by Cameroon in respect of the development of information and communication technologies ;
- harmonising intervention procedures in the sector ;
- validating the compliance of projects and programmes with the national ICT development strategy ;
- informing stakeholders of the sector ;
- supervising the conduct of institutional reviews ;
- finding lasting solutions to ICT financing ;
- monitoring the involvement of NGOs, associations, private operators and development partners in the programming and follow-up of actions.

Besides the representatives of sectoral ministries involved, the Committee will further comprise civil society and private sector representatives. The Chairperson may, as and when necessary, invite any individual or legal entity of the sector.

4.6.2. Permanent Secretariat

The Steering Committee will have an executing agency called the « Permanent Secretariat », which shall be responsible primarily for:

- preparing Steering Committee meetings and taking the minutes thereof ;
- ensuring coherence among activities programmed ;
- working in close collaboration with ministerial strategy monitoring/evaluation committees ;
- ensuring coherence of sectoral programmes with ministerial policies ;
- initiating or participating in all sectoral framework studies ;
- establishing and managing databases relating to monitoring and evaluation ;
- collecting, updating and analysing all information on sectors concerned ;
- preparing institutional reviews (with donors and other partners) of sector concerned ;
- monitoring the execution of ongoing programmes and projects in the sector.

NAICT shall serve as the Permanent Secretariat.

In the discharge of its duties, the Permanent Secretariat may be assisted, where necessary, by a Permanent Pool of Experts or Working Groups (thematic or sectoral).

4.6.3. Ministerial Committees

Ministerial Committees coordinate actions aimed at implementing the strategy within ministries involved. Each ministerial committee will be assisted technically by an **Operational Unit,** which shall be responsible notably for:

- executing tasks assigned by the sectoral/ministerial implementation committee;
- preparing data gathering indicators and tools ;
- collecting and analysing data sent by provincial/regional branches ;
- preparing semi-annual reports on the implementation of the strategy in the sector/ministry ;
- preparing the annual draft budget, action plans and progress reports.

The Operational Units will be assisted by **Provincial or Regional Branches** which shall:

- draw up a list of provincial/regional priorities as concerns objectives and actions ;
- validate the programming of actions at provincial/regional level ;
- verify suitability of actions to provincial/regional priorities and needs, and propose the necessary readjustment measures ;
- monitor the execution of sectoral actions and projects in the province/region ;
- prepare (quarterly) economic situation reports.

For this plan to be implemented through a participatory and regulated approach, the following consultation, monitoring and coordination organs need to be set up:

- Supervisory Board;
- sectoral committees.

4.6.4 NAICT Supervisory Board

This Board will be responsible for overseeing and guiding the implementation of the Plan. It will be set up by the General Manager of NAICT, and will have the following duties:

- taking all the necessary measures to foster consultation among the main stakeholders as well as the overall evaluation of projects ;
- drawing up a schedule for the execution of the action plan ;
- ensuring the realisation of sensitisation campaigns and of priority actions intended for the organisation and regulation of the sector ;
- setting goals to be achieved and implementation deadlines ;
- proposing measures likely to contribute to the sound execution and the financing of the action plan ;
- proposing, as and when necessary, any measures to correct or readjust the action plan.

The composition of the Board will be as follows:

- representatives of development partners ;
- NAICT representatives in ministries ;
- civil society representatives ;
- representatives of professional associations of the sector ;
- representatives of sectoral committees.

The Supervisory Board will meet every six months to assess the progress of the Plan, and as necessary when convened by the General Manager of NAICT. It may invite any person to attend its meetings on account of his expertise in topics to be discussed. In this respect, the Board shall draw up a report on the state of implementation of the National ICT Plan.

4.6.5 Sectoral Committees

Sectoral Committees will be set up for each strategic area: infrastructure, education/research & development, health, governance, trade and industry, technological choices and training, etc.

- Infrastructure Committee: It will be a consultative forum for specific aspects relating to the establishment of basic infrastructure. Its mission will consist of coordinating, monitoring and evaluating the execution of projects. It will meet once every six months to assess the status of implementation of the Plan, or as and when necessary. Its members will be selected from among NAICT officials in the sectoral structures. The chair of the committee shall forward reports to the chairperson of the NAICT Supervisory Board and to Ministries which are direct beneficiaries of the project

- Governance Committee: It will be a consultative forum for specific aspects relating to actions planned for the modernisation of the administration. Its mission will consist of coordinating, monitoring and evaluating the execution of projects in the sector. It will meet once every six months to assess the status of implementation of the Plan, or as and when necessary. Its members, including a representative of the National Institute of Statistics and Demography, will be selected from among NAICT officials in the sectoral structures. The chair of the committee shall forward reports to the chairperson of the NAICT Supervisory Board and to Ministries which are direct beneficiaries of the project

- Education/Research & Development Committee: The Education/Research & Development sector is today the sector best organised to promote ICT usage. The corps indeed constitutes the nucleus of the sectoral committee that should be supported by NAICT experts as well as representatives of the Ministries of Basic Education, Secondary Education, Higher Education, and of Scientific Research and Innovation. Its mission will consist of coordinating, monitoring and evaluating the execution of projects in the sector. It will meet once every six months to assess the status of implementation of the Plan, or as and when necessary. The chair of the committee shall forward reports to the chairperson of the NAICT Supervisory Board and to Ministries which are direct beneficiaries of the project

- Content and Multimedia Convergence Committee: This committee will be responsible for harmonising the contents development policy, although such contents could actually be developed within the various sectors. It will further be in charge of promoting and realising a contents production industry. The committee will further be concerned with issues relating to ethics, intellectual property, multilingualism and Internet governance (in respect of content management).

- Trade/Industry Committee: This committee will constitute the consultative forum for specific aspects relating to the putting in place of applications, contents and infrastructure needed to facilitate commercial transactions. Its mission will also include coordinating, monitoring and evaluating the execution of projects in the sector. It will meet once every six months to assess the status of implementation of the Plan, or as and when necessary. The chair of the committee shall forward reports to the chairperson of the NAICT Supervisory Board and to Ministries which are direct beneficiaries of the project. Besides NAICT officials, the Committee will also comprise:
  - a representative of the Chamber of Commerce;
  - a representative of the association of banks;
  - a representative of BEAC;
  - a representative of the association of insurance companies;
  - a representative of the Ministry of Tourism ;
  - a representative of the Ministry of Trade;
  - a representative of the Ministry of Mines, Industry and Technological Development.

- Technological Options and Training Committee: The Plan can hardly be realised without appropriate technological options and training adapted to these options for technicians who will oversee the implementation as well as producers and users. This is the raison d'être of the committee which will also constitute the consultative forum for aspects relating to technological awareness, options and training. Its mission will consist of coordinating, monitoring and evaluating the execution of projects in the sector. Its composition will be as follows :
  - a representative of each university or vocational training establishment providing training in information technology, telecommunications, communication and multimedia production ;
  - the Chairperson of the Infrastructure Committee ;
  - the Chairperson of the Governance Committee ;
  - the Chairperson of the Trade/Industry Committee ;

- the Chairperson of the Education/Research & Development Committee ;
- a representative of civil society.

Donors group: The aim here, as in other priority sectors such as decentralisation, is to foster the creation of a consultative forum of donors who wish to assist in the realisation of the Plan. This should make it possible to associate the partners in the brainstorming on ICT stakes for Cameroon, to direct their assistance to the most promising actions and to more systematically mobilise the resources needed to implement the Plan.

4.7. Monitoring

Based on its priorities and existing capacities, each coordination committee has to determine the monitoring system, in keeping with the indicators defined in the project concerned, so that the implementation can be appropriately monitored.

4.8. Evaluation of implementation

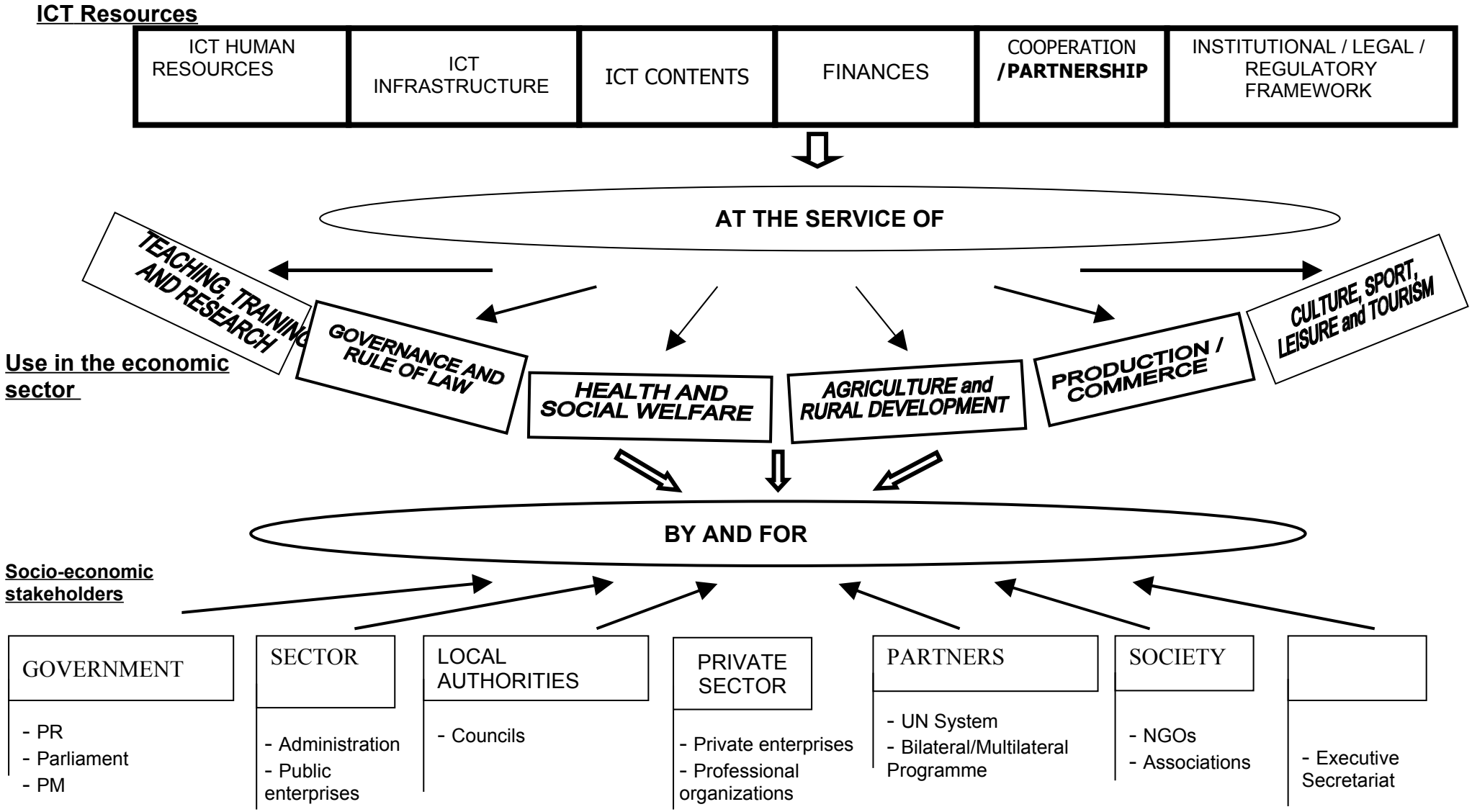
For the strategic objectives of the Plan to be achieved, there must be continuous evaluation aimed at:

- detecting and rapidly correcting any shortcomings that could arise in implementation at any stage ;
- providing the necessary solutions to redress, if need be, the specific objectives of projects in order to harmonise them with the strategic objectives of the Plan and national expectations ;
- evaluating the impact of the Plan in the light of the strategic objectives pursued;
- besides the evaluation activities to be carried out within sectoral committees, it would be advisable for an independent consultant to make a comprehensive evaluation of the implementation of the Plan once a year. Such an evaluation will focus on the following aspects :
    - mobilisation of required resources;
    - outputs achieved with the resources acquired ;
    - impact of outputs on specific and strategic objectives ;
    - activities of the Supervisory Board and sectoral committees, and the overall impact of such activities on the implementation of the Plan ;
    - management of projects carried out under the Plan, as regards both the administration and the management of financial, technical and human resources.

There will be a systematic evaluation of the ICT development document and the implementation process every three years. This should make it possible each time to readjust the policies and strategies set in order to render them more operational, efficient and meaningful. The first evaluation will be conducted in 2009 since all sectors would not have exploited this document.

The findings of the evaluation will be discussed in a national workshop on this issue bringing together all the stakeholders involved in the implementation of the Plan (Supervisory Board, Sectoral Committees, donors group, etc.).

ICT STRUCTURAL FRAMEWORK IN CAMEROON



CONCLUSION

This policy is a working document which intends to stimulate brainstorming on the major challenges and issues confronting ICT development in Cameroon on:

- how to give universal, equitable and financially affordable access to ICT infrastructure and services ;
- how to enable each citizen to build his capacities to gain access to information, ideas and knowledge and contribute thereto;
- how to create a confidence building atmosphere while guaranteeing the security of information and networks as well as protecting privacy and the consumer ;
- how to make the most benefit of ICT opportunities to combat poverty and promote development.

The policy provides tentative solutions to these essential issues, so that maximum attention can be devoted to the structuring, planning and programming of development projects. This document is supplemented by a detailed action plan presenting the various projects through which the national strategy will be implemented.