

ECONOMIC AND SOCIAL COMMISSION FOR WESTERN ASIA

**INFORMATION AND COMMUNICATION TECHNOLOGIES FOR
EMPLOYMENT CREATION AND POVERTY ALLEVIATION
IN SELECTED ESCWA MEMBER COUNTRIES**

United Nations

Distr.
GENERAL
E/ESCWA/ICTD/2005/2
14 April 2005
ORIGINAL: ENGLISH

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United Nations
New York, 2005

05-0223

Preface

When the Member States of the United Nations adopted the Millennium Declaration in September 2000, they agreed to an ambitious plan for development in the twenty-first century. The Millennium Development Goals (MDGs) constitute a road map for implementing the Millennium Declaration and include eight goals, the first of which is to eradicate extreme poverty and reduce by half the proportion of people living on less than a dollar a day against a baseline set to the year 1990.¹ In addition, the first seven goals reinforce each other and are expected to reduce poverty in all its forms. Such an ambitious plan calls for immediate action to maintain sustainable socio-economic development at the global, regional and national levels.

In support of the work undertaken by the United Nations and its sister organizations in relation to MDGs, the Economic and Social Commission for Western Asia (ESCWA) formulated the regional agenda for Action on Technology, Employment and Poverty Alleviation (ATEPA) in July 2002. According to this agenda, which was also prepared in cooperation with the International Labour Organization (ILO), the ESCWA initiative on Technology, Employment and Poverty Alleviation (TEPA) was launched and is currently being implemented through a number of constituent programmes and projects. Support for TEPA has been obtained from the Arab Fund for Economic and Social Development, the United Nations Development Account, ILO and ESCWA. The TEPA initiative is designed to explore and pilot concepts and modalities aimed at harnessing new technologies for employment creation and poverty alleviation in Arab countries. A number of modalities have been identified for delivering new technology inputs at the local community level, namely, multipurpose technology community centres, smart community projects and agro-food production activities. Partnerships have been established with municipalities, civil society institutions and enterprises involved in activities targeted by TEPA.

With the above in mind, this study is aimed at highlighting the various possibilities related to information and communication technologies (ICTs) with regard to tackling employment creation and poverty alleviation in Western Asia. It also presents implementation modalities and identifies best practices and key sustainable projects that are relevant to the specificities of the region.

¹ United Nations, *United Nations Millennium Development Goals*. Available at: <http://www.un.org/millenniumgoals/>.

CONTENTS

Page

Preface	iii
Abbreviations and explanatory notes	vii
Introduction	1
<i>Chapter</i>	
I. POVERTY AND UNEMPLOYMENT IN THE ESCWA REGION	3
A. Poverty in the ESCWA region	3
B. Unemployment in the ESCWA region	5
II. ICT APPLICATIONS FOR EMPLOYMENT CREATION AND POVERTY ALLEVIATION	8
A. Breadth of ICT applications	8
B. Enabling hardware technologies.....	9
C. Digital Arabic content	10
D. ICT endeavours related to employment creation and poverty alleviation	11
E. ICT projects from selected developing countries	13
III. ICT INITIATIVES IN SELECTED ESCWA MEMBER COUNTRIES	14
A. Overview of identified initiatives.....	14
B. Case studies	17
C. Trends and challenges	20
IV. IMPLEMENTATION FRAMEWORK, MODALITIES AND APPROACHES	22
A. Role of stakeholders	22
B. Implementation framework	23
C. Implementation modalities	23
D. Implementation approaches.....	26
E. Indicators of achievement.....	29
V. RECOMMENDED POLICIES AND PRIORITY PROJECTS FOR THE REGION.....	30
A. Pro-poor ICTs for development policies	30
B. Regional priority projects.....	33
VI. CONCLUSION.....	39

LIST OF TABLES

1. Poverty in Western Asia, 2002.....	5
2. Unemployment in selected ESCWA members, 1996-2001	5
3. ICT initiatives, by ESCWA member.....	14
4. ICT initiatives, by ESCWA member versus target groups.....	14
5. ICT initiatives, by services and ESCWA member	15
6. Sources of financing.....	16
7. Summary of priority projects	34

CONTENTS (continued)

Page

LIST OF FIGURES

I.	Average annual wage of employees in manufacturing in the ESCWA region	7
II.	Distribution of initiatives, by cost of charge	16
III.	Budget of identified ICT initiatives	17
IV.	Potential partners.....	22
V.	Human Development Index for ESCWA members, 2002	23
VI.	Implementation modalities	24

LIST OF BOXES

1.	Concept of poverty	4
2.	Migration in the Arab region.....	7
3.	WiFi network	10
4.	Alternative power systems	11
5.	PC 4 All initiative.....	18
6.	Poverty line in Thailand	31
7.	Performance of the ICT sector in India	32
<i>Annex.</i>	Selected ICT initiatives for employment creation and poverty alleviation	40

ABBREVIATIONS AND EXPLANATORY NOTES

ATPA	Action on Technology, Employment and Poverty Alleviation
DAC	digital Arabic content
ESCWA	Economic and Social Commission for Western Asia
GCC	Gulf Cooperation Council
GDP	gross domestic product
HDI	Human Development Index
HPI	Human Poverty Index
ICT	information and communication technology
ILO	International Labour Organization
ISP	Internet service providers
IT	Information technology
JITCC	Jordan Information Technology Community Centres
MDG	Millennium Development Goal
MTCC	multi-purpose technology community centres
NGO	non-governmental organization
PC	personal computer
PCA	Professional Computer Association
PiPOP	PCA Internet Point of Presence
SME	small and micro enterprise
TEPA	Technology, Employment and Poverty Alleviation
UNDP	United Nations Development Programme
USAID	United States Agency for International Development
WAP	Wireless Application Protocol
WiFi	wireless fidelity network

The following symbols have been used throughout this study:

Two dots (..) indicate that data are not available or are not separately reported.

References to dollars (\$) are to United States dollars, unless otherwise stated.

Introduction

Despite the fact that poverty in Western Asia is not as acute as it is in such regions as sub-south Asia, sub-Saharan Africa or East Asia and the Pacific,² poverty continues to be a major issue in ESCWA member countries, and must be addressed to reduce social tensions, secure future socio-economic stability and maintain development in the region. This is particularly important given that terrorism and extremism, which are substantial threats to the region, tend to flourish in environments of despair, poverty and social malaise.

The concept of poverty is multidimensional. It is mainly associated with the deprivation of adequate income in addition to a lack of access to food, shelter, health-care services and education. Understanding the nature and characteristics of poverty in any given country or community enables policymakers to formulate suitable strategies and devise appropriate plans of action. It also ensures that development resources are suitably channelled into poorer communities and that unemployment issues are investigated. The relationship between poverty and labour markets is a crucial one in that poverty is explicitly related to a lack of income and a shortage of jobs. In this context, poverty alleviation strategies also include the creation of new employment opportunities by encouraging entrepreneurial activities and establishing small and micro enterprises (SMEs), as well as supporting existing SMEs.

With this in mind, information and communication technologies (ICTs) serve as new tools for escaping from poverty, empowering impoverished communities, and providing access to vital resources and information. By creating new jobs, reducing unemployment, establishing new distribution channels and providing new competitive advantages, ICT applications geared towards employment creation and poverty alleviation will eventually contribute to reducing the gap between the rich and poor in the Economic and Social Commission for Western Asia (ESCWA) member countries. Moreover, ICTs render information and knowledge available to wider segments of the population, thereby promoting democratic values and combating extremism. This study therefore focuses on alleviating poverty in Western Asia by means of the following:

- (a) Empowering and building the capabilities of the poor through the use of ICTs, thereby improving their chances for increasing their income;
- (b) Harnessing ICTs for developing entrepreneurial activities and SMEs, thereby improving productivity, competitiveness and growth, and therefore job creation in these areas.

Given the political and social instability that continue to plague the region and the inadequate socio-economic development policies that have been implemented in the past, Western Asia, in particular, is in danger of becoming more vulnerable to poverty than ever before. The poor communities in the ESCWA region continue to be relatively more marginalized in accessing ICT than their counterparts in other regions, and the gap between the information-haves and have-nots is widening. A lack of technological know-how can be considered to be a main factor in triggering poverty as a result of a shrinking stock of human capital and knowledge. Consequently, the digital divide continues to widen in ESCWA member countries, particularly in those countries with a low Human Development Index (HDI), namely, Egypt and Yemen.³ This study therefore examines the opportunities offered by ICTs and the benefits they induce with regard to escaping from poverty and creating employment. The study targets policymakers in the field of social issues from the private sector, non-governmental organizations (NGOs) and Governments, particularly employment institutions and social affairs ministries. It reviews case studies on alleviating poverty, particularly among youth and women; presents an implementation framework and modalities; and recommends policies and a number of priority projects for the region.

² The regional distribution of population living on less than \$1 a day (as a percentage of the total population) is 0.7 in the Arab States, 39.2 in South Asia, 29.3 in sub-Saharan Africa, 23.7 in East Asia and the Pacific, 5.1 in Latin America and the Caribbean, and 1.9 in Central and Eastern Europe and the Commonwealth of Independent States. See United Nations Development Programme (UNDP), *Human Development Report 2004* (New York, UNDP, 2004), p. 130.

³ In 2002, the Human Development Index in Egypt was 0.653, and 0.482 in Yemen. See UNDP, *Human Development Report 2004* (New York, UNDP, 2004), p. 145.

Chapter I presents an overview of poverty and unemployment in Western Asia, to determine the gravity of the current social situation, which has the potential of further destabilizing the region. It examines economic and social poverty, in addition to selected attributes of the poor communities in the region. Unemployment and underemployment are examined in tandem with other problems, for example, labour migration.

The potential of ICT applications for tackling employment creation and poverty alleviation in the region are considered in chapter II. A summary of Internet-based software applications and hardware technologies is presented with the aim of empowering citizens and increasing access to information. This is followed by a brief review of the importance of digital Arabic content (DAC) and various applications for harnessing ICT to serve impoverished communities and SMEs. This chapter concludes by outlining a number of ICT solutions from selected developing countries.

Chapter III is based on a survey on ICT initiatives for poverty reduction and employment creation that was commissioned by ESCWA. It is intended to provide an overview of actions or initiatives that have been implemented or were being implemented in six ESCWA member countries, as of November 2004. The policies and the recommendations for plans of actions that are proposed within this study are based on the 48 initiatives identified in the survey.

Chapter IV proposes an implementation framework based on HDI grouping; four main country clusters are depicted, which categorize member countries in terms of how urgently they need to harness ICTs for employment creation and poverty alleviation. In addition, various components for devising implementation modalities are presented, as are recommended modalities. This chapter describes three implementation approaches, namely, the bottom-up, top-down and hybrid approaches, which are related to the above-mentioned clusters. Indicators of achievements are outlined to facilitate the process of monitoring the progress of work and to assess results.

Chapter V outlines a proposal for a strategic plan, which can be viewed as a set of guidelines to instigate national and regional actions aimed at harnessing ICTs for employment creation and poverty alleviation in the ESCWA region. The plan consists of seven pro-poor ICTs for development policies and twenty priority projects for the region.

The conclusion is presented in chapter VI, and the annex lists the 48 ICT initiatives for employment creation and poverty alleviation that are reviewed in chapter III.

I. POVERTY AND UNEMPLOYMENT IN THE ESCWA REGION

Political instability, regional and inter-State conflicts, and slow economic growth have undermined social development in the region. In addition, widespread unemployment and increasing migration are inducing an environment of despair and social malaise.

This chapter presents an overview of poverty and unemployment in Western Asia to ascertain the gravity of the current social situation, which could further destabilize the region.⁴ One common denominator for all ESCWA member countries is a lack of up-to-date or accurate figures pertaining to poverty indicators and unemployment rates. This chapter, therefore, is aimed at encouraging national and regional efforts related to increasing transparency and accuracy in determining social indicators, thereby ensuring that those concerned are better able to devise future interventions aimed at alleviating social tensions.

A. POVERTY IN THE ESCWA REGION

Poverty is usually appraised in reference to income or consumption. However, while lack of income is at the heart of this issue, poverty also refers to a lack of rights, powerlessness, exclusion and loss of dignity. This section analyses the manifestations of poverty in Western Asia, namely, economic and social poverty.⁵ The concept of poverty is reviewed in box 1.

Economic poverty, which refers to the failure or absence of suitable fiscal and/or monetary policies within a Government, is a main driver for increasing poverty as economies shrink. It is typically analysed with reference to the income or the consumption of individual persons, taking into account their type of household. Moreover, it is associated with a weak national vision for poverty alleviation and a lack of appropriate implementation mechanisms. Unfortunately, many ESCWA member countries have large budget deficits, for example, Egypt,⁶ Saudi Arabia⁷ and Yemen.⁸ Egypt's large structural trade deficit stood at \$7.5 billion in 2002; and in the same year, Saudi Arabia faced its largest budget deficit at an estimated \$12 billion. Yemen's budget deficit was approximately \$378 million in 2003, based on the fact that its expenditures and revenues in that year were estimated at \$4.107 billion and \$3.729 billion, respectively. The financial deficit in most ESCWA member countries contributes towards reducing both capital accumulation and productivity growth. Despite the fact that the poor have the potential to fare better in countries with high rates of economic growth, even when income distribution deteriorates slightly,⁹ the financial deficit of most ESCWA member countries is a factor in increasing the vulnerability of these people.

Social poverty is based on various social criteria related to demographic change, racial inequality and social welfare, particularly access to health-care services. For example, inequalities in health services seem to be increasing rather than lessening in many areas, while at the same time, the poor in developing countries, unlike their counterparts in wealthier countries, tend to receive a smaller portion of government health subsidies.¹⁰ However, while some initiatives have been taken by ESCWA member countries to provide virtually free health-care services for the poor, increased efforts must be exerted to alleviate social

⁴ This chapter is an updated version of chapter I of "ICT for poverty reduction and employment creation in Western Asia—a strategic plan" (E/ESCWA/ICTD/2004/WG.1/4), a paper presented to the Roundtable on ICT as an Enabler for Economic Development (Beirut, 29-30 April 2004), pp. 9-12.

⁵ Alexander G. Flor, "ICT and poverty: the indisputable link", a paper prepared for the Third Asia Development Forum on Regional Economic Cooperation in Asia and the Pacific (Bangkok, 11-14 June 2001).

⁶ Economist.com. Available at: <http://www.economist.com/countries/Egypt/profile.cfm?folder=Profile-FactSheet>.

⁷ AME Info. Available at: <http://www.ameinfo.com/news/Detailed/16569.html>.

⁸ Answers.com. Available at: <http://www.answers.com/topic/economy-of-yemen>.

⁹ Michael Roemer and Mary Kay Gugerty, "Does economic growth reduce poverty?". Available at: <http://www.cid.harvard.edu/caer2/hm/content/papers/bns/dp04bn.htm>.

¹⁰ World Health Organization, *Bulletin of the World Health Organization* 2002, vol. 80, No. 2. Available at: [http://www.who.int/docstore/bulletin/pdf/2002/bul-2-E-2002/80\(2\)97-105.pdf](http://www.who.int/docstore/bulletin/pdf/2002/bul-2-E-2002/80(2)97-105.pdf).

poverty in the region. It can also be noted that a poor social environment hampers the ability to finance social activities, which can ultimately lead to the exclusion of a large portion of society. As a consequence, there is an increasing degree of polarization in the social structure, which has a negative effect on economic growth and social welfare.

A significant threat in some countries in Western Asia is not poverty per se but rather vulnerability or, in other words, the likelihood of falling into poverty. This vulnerability creates a sense of instability and insecurity among citizens, and complicates the issues associated with poverty alleviation in the region. Moreover, the urbanization of populations is on the increase in many parts of the world, including in ESCWA member countries. As populations in Western Asia become increasingly urbanized, the problem of poverty is increasingly being viewed as an urban issue, leading as it does to an excessive supply of workers competing for low-skilled work.

Despite the points made above, positive attributes are associated with the poorer communities in Western Asia, particularly those attributes that are associated with the importance of the clan, the family and the neighbourhood. This manifestation of social coherence provides a safety net for the poor by bringing together members of the community in difficult times. Such attributes, which could be maximized through the use of ICTs and other modern technologies, must be leveraged to increase the welfare of the poor.

Table 1 depicts figures pertaining to poverty in Western Asia. As illustrated, poverty is relatively high in Egypt, Oman, Saudi Arabia, Syrian Arab Republic and Yemen. In addition, human poverty, which relates to a multitude of factors mainly related to education, health and income, is much higher among women in most ESCWA member countries. It can also be noted that health among children under the age of five is a significant problem in a number of countries, and that adult and youth literacy rates are particularly low in Egypt and Yemen.

Box 1. Concept of poverty

Poverty is one of the most challenging obstacles with regard to socio-economic development. It is a multidimensional concept that largely refers to a lack of adequate income to purchase essential food for a normal life; it is also characterized by a lack of proper access to basic health-care services and the deprivation of education. There are different concepts of poverty: for example, poverty can be viewed in absolute or relative terms; it can be approached from objective or subjective perspectives; and it can be divided into two forms of deprivation, namely, physiological and sociological.

Common notions related to poverty are outlined below:

- (a) *Equity*: This is concerned with distribution within a population group;
- (b) *Vulnerability*: This is a function of external risks, shocks, stresses and internal defencelessness;
- (c) *Social exclusion*: This is associated with the depreciation of rights that impede people from participating fully in their society and its development;
- (d) *Underdevelopment*: This can be interpreted from two main perspectives, namely, the conglomerative perspective, which focuses on the advances made by all groups, rich and poor, in each community; and the deprivational perspective, according to which development is judged by the way the poor and the deprived fare in each community.

Source: Renata Lok-Dessallien, "Review of poverty concepts and indicators". Available at: http://www.undp.org/poverty/publications/pov_red/Review_of_Poverty_Concepts.pdf.

TABLE 1. POVERTY IN WESTERN ASIA, 2002

ESCWA member	GDP per capita in 2002 (\$)	Children underweight for age, under five years old (percentage) 2002	Adult literacy rate, 15 years old and above (percentage) 2002	Human poverty (percentage) 2002 ^{a/}	
				Men	Women
				Youth literacy rate, 15-24 years old (percentage) 2002	
				Men	Women
Bahrain	11 007	9	88.5	7.20	12.40
Egypt	1 354	11	55.6	23.40	29.10
Iraq	..	..	..	..	..
Jordan	1 799	5	90.9	6.40	11.10
Kuwait	15 193	10	82.9	11.10	14.00
Lebanon	3 894	3	..	7.60	14.00
Palestine	..	..	..	..	..
Oman	8 002	24	74.4	22.10	31.70
Qatar	28 634	6	84.2	..	..
Saudi Arabia	8 612	14	77.9	14.60	23.40
Syrian Arab Republic	1 224	7	82.9	10.20	27.60
United Arab Emirates	22 051	14	77.3	17.50	14.50
Yemen	537	46	49.0	32.10	54.80

Source: United Nations Development Programme (UNDP), *Human Development Report 2004* (New York, UNDP, 2004).

Note: Two dots indicate (..) that data are not available or are not separately reported.

^{a/} ESCWA, *Poverty and the means for measuring it in the ESCWA region* (in Arabic), (E/ESCWA/SDD/2003/25).

B. UNEMPLOYMENT IN THE ESCWA REGION

1. Unemployment rates in the ESCWA region

The labour market in the region is characterized by increasing unemployment and underemployment as a result of the absence of mechanisms to absorb new labour,¹¹ and also because of excess labour from shrinking sectors, for example, the agricultural sector. Unemployment rates for ESCWA members vary enormously, see table 2, which provides an overview of unemployment in selected ESCWA members for the period 1996-2001. For example, the unemployment rate in Bahrain for the period 1996-2001 was 5.5 per cent, while it reached 15.3 per cent in Jordan and 25.5 per cent in Palestine. Moreover, high youth unemployment rates, which reached 48.9 per cent and 35.6 per cent in Oman and Palestine, respectively, must alert Governments to the need for suitable basic education and vocational training strategies.

TABLE 2. UNEMPLOYMENT IN SELECTED ESCWA MEMBERS, 1996-2001

ESCWA members	Unemployment rates: both sexes	Youth unemployment		Youth unemployment rate: both sexes
		rate: men	rate: women	
Bahrain	5.5	17.8	27.5	20.7
Egypt	9.2	18.4	43.8	25.8
Iraq	..	..	..	..

¹¹ Unemployment among the 15-24 age group can be eight to ten times the rate of unemployment for the 25-34 age group, while in Organization for Economic Cooperation and Development (OECD) countries, the ratio does not exceed two to one. See "Youth employment in the ESCWA region", a paper prepared by ESCWA for the Youth Employment Summit (Alexandria, Egypt, 7-11 September 2002).

TABLE 2 (continued)

ESCWA members	Unemployment rates: both sexes	Youth unemployment rate: men	Youth unemployment rate: women	Youth unemployment rate: both sexes
Jordan	15.3	..	..	..
Kuwait	..	..	..	..
Lebanon	8.4	23.9	13.6	21.6
Palestine	25.5	36.2	30.7	35.6
Oman	23	44.9	60.3	48.9
Qatar	3.9	11.6	50.9	17
Saudi Arabia	4.6	24.4	31.6	25.9
Syrian Arab Republic	11.2	17.9	40.4	23.5
United Arab Emirates	..	..	..	..
Yemen	11.5	20.5	13.5	18.7

Source: ESCWA, *Survey of Economic and Social Developments in the ESCWA Region 2003-2004*, (E/ESCWA/EAD/2004/4), pp. 48-49.

Note: Two dots (..) indicate that data are not available.

2. Reasons for rising unemployment rates

Key reasons for rising unemployment rates in the region generally include increasing internal and foreign debt; the cancelling of measures designed to protect local industries; low growth rates in several sectors, particularly the agricultural sector; increasing rates of inflation; decreases in economic growth; and low amounts of local and foreign direct investment. In addition, high population growth in the region, particularly in Egypt, Saudi Arabia and Yemen, has led to a rapid saturation of local job markets. New industries must be established and basic structural and institutional reforms are required to overcome this problem. For example, a shift towards techno-economic paradigms is vital for harnessing technologies, particularly ICTs, for socio-economic development.

In addition, problems in the labour market have been accentuated by the decline of wages in traditional sectors as of 2000 (see figure I) and the decreasing productivity of the workforce. In addition, the purchasing power of these wages has eroded as a result of increased inflation rates.

Labour migration is another important issue in this context, and it can be associated with knowledge migration in some cases.¹² A substantial percentage of the labour force in non-oil rich countries is continuing to migrate to countries of the Gulf Cooperation Council (GCC) and the West (see box 2).¹³ This leads to an increased brain drain,¹⁴ whilst at the same time reducing the attractiveness of employment and living conditions in GCC countries. The fact that GCC countries are still importing expert manpower highlights the urgent need to address the issue of forming and upgrading skills in an adequate and timely manner. It is also worth noting that some Arab immigrants, mainly those based in GCC countries, through their support of relatives and remittances, have become a new source of development aid for their countries and contribute to the survival of their families.

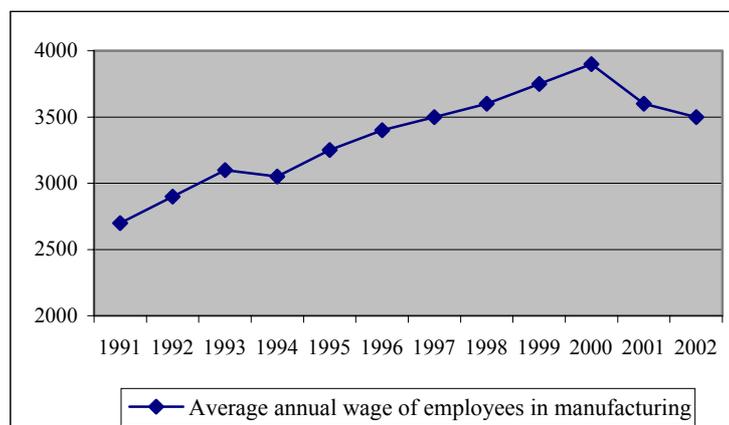
The bottom line is that the current conditions in the labour market in the region, namely, increasing unemployment and underemployment, are affecting the quality of human capital in the region.

¹² For example, many new graduates in Lebanon and Jordan leave their countries to seek job opportunities abroad.

¹³ UNDP, *The Arab Human Development Report 2003: building a knowledge society* (New York, UNDP, 2003).

¹⁴ Between 1998 and 2000, more than 15,000 Arab doctors migrated to other countries. See UNDP, *The Arab Human Development Report 2003* (New York, UNDP, 2003), p. 10.

Figure I. Average annual wage of employees in manufacturing in the ESCWA region (United States dollars)



Source: ESCWA, *Statistical Abstract of the ESCWA Region 2003*, twenty-third issue, (E/ESCWA/SDD/2003/29).

Box 2. Migration in the Arab region

According to a 2002 United Nations Development Programme report on Arab countries, the average income of Arab citizens was 14 per cent of the average income in the Organization for Economic Cooperation and Development area, with some 50 per cent of Arab youths expressing a desire to emigrate. Many areas are densely populated, for example, Beirut, Gaza and the lower Nile Valley, and this population density combined with the gap between job creation and the entry of new cohorts into the labour market encourages emigration.

Egypt provides another example of a specific migration problem. As of 2002, Egypt was in a situation where it needed to create 500,000 jobs per year to employ population cohorts entering the job market. It was not able to do this, and therefore it signed 11 bilateral agreements with neighbouring States between 1974 and 1993 to facilitate the emigration of its citizens. Statistics reveal that in the mid-1990s, some 70 per cent of all Egyptian migrants headed to Saudi Arabia.

Source: Stephen Castles and Mark J. Miller, *The Age of Migration*, third edition, (Basingstoke, United Kingdom and New York, Palgrave Macmillan, 1993, 1998 and 2003).

II. ICT APPLICATIONS FOR EMPLOYMENT CREATION AND POVERTY ALLEVIATION

ICT applications offer a number of opportunities for creating employment and alleviating poverty. Nevertheless, ICTs must not be perceived as panacea to all the ills of unemployment and poverty, but as a tool that can only be effectively used in conjunction with adequate national policy frameworks and local measures aimed at employment creation and poverty alleviation. In this context, this chapter examines innovative ICT tools and applications, and provides information to policymakers on some of the most promising ICTs with the purpose of highlighting their different applications.

In addition, Internet-based software applications and hardware technologies capable of empowering the poor and increasing access to information are presented below, followed by a brief review of DAC and of the various applications for harnessing ICTs to serve impoverished communities and SMEs. The chapter ends by outlining a number of successful ICT solutions in selected developing countries.

As indicated above, ICTs will be more effective in creating employment and alleviating poverty when ESCWA member countries work together to formulate adequate policies and regulatory frameworks. Bearing this in mind, national ICT initiatives and plans of action must be devised to address national and local particularities. Furthermore, activities, surveys, feasibility studies, business plans and pilot projects need to be undertaken. These must take into consideration that it is necessary to distinguish between appropriate and affordable technologies; innovative ICT projects do not necessarily have to incorporate state-of-the-art technologies that incur high costs and entail specialized skills. On the contrary, successful projects for impoverished communities are often those devised on the basis of simple concepts aimed at solving endogenous problems. As such, affordable technologies must be used whenever possible, to encourage the poor to use these services regularly. In addition, appropriate technologies must be utilized to overcome implementation hurdles. For example, in the absence of a telecommunications infrastructure or Internet access, offline technologies are worth considering, and these could include producing and delivering a number of solutions on compact discs, which could be distributed, perhaps, in community centres. Multimedia can also be used to overcome illiteracy through user-friendly applications that incorporate graphics and animation to help end-users access relevant information.

A. BREADTH OF ICT APPLICATIONS

A number of ICT software applications can be harnessed for job creation and poverty alleviation. This section reviews the most common of these applications and also examines selected innovative Internet-based software solutions that have the potential to effect positive changes in the life of the poor and help to create employment, particularly when coupled with counselling services, and when linkages are forged along the nodes of the value chain. Various groups of ICT applications are outlined below:

(a) *Advanced ICT training*: This refers to courses on the use of spreadsheets, word processing, and the installation and maintenance of local area networks. After the successful completion of a course, users are certified; common certifications include the Cisco Certified Network Associate and the Microsoft Certified Professional certification. Other courses include Autocad training, software programming, and website design and development. Such courses usually require the payment of fees;

(b) *E-learning*: This is geared towards combating illiteracy, and providing distance and lifelong learning. A variety of e-learning solutions are available, and some are home-grown applications. Many of these applications will require modifications to enable them to serve impoverished communities effectively;

(c) *ICT-based vocational training*: This is aimed at developing the specialized skills to fulfil the needs of a niche market, and covers secretarial skills, basic accounting and the maintenance of mobile telephones. Such training could be coupled with microfinancing schemes to encourage entrepreneurial activities;

(d) *E-commerce*: This is a relatively new radical business model that is transforming the way in which trade is conducted and could enable impoverished communities to generate economic benefits and

reach new markets. E-commerce is extremely important, especially given that it is capable of generating economic returns through commercial transactions that involve the exchange of goods and services online, 24 hours a day and 7 days a week. Recent e-commerce applications include websites that promote ecotourism and encourage fair trade in souvenir products or cultural artefacts;

(e) *E-government*: This is aimed at serving citizens and SMEs. It facilitates interaction with Governments by enhancing access to public information through the use of websites and/or kiosks, by reducing the time and costs related to conducting transactions, and by attenuating the agency-centric nature of some Government functions. Typical applications include civil registration, and also municipal, job search and social security services;

(f) *E-employment*: This is concerned with ICT-based solutions that generate economic value as a result of remote working and which require a system to remunerate such work. E-employment applications enable people to carry out work from any location, and are targeted at the unemployed;

(g) *E-health*: This entails the provision of basic health services related to common diseases, hygiene, prenatal care, newborn babies, child nutrition/fitness and parenting. Typical applications to improve the welfare of the poor include telemedicine for impoverished rural areas or an e-health caravan for remote areas.

B. ENABLING HARDWARE TECHNOLOGIES

Innovations and such market forces as competition, play a major role in decreasing the price of ICT hardware technologies, and increasing their speed and user-friendliness. Moreover, the convergence of technologies, particularly among telecommunications, data communications, software applications and hardware systems, is generating new enabling hardware equipment. A number of hardware technologies capable of creating earnings opportunities are reviewed below:¹⁵

(a) *Handheld computers*: The key benefit of handheld computers is that they are portable, which is useful in assisting poor communities and health-care workers in remote areas. Handheld computers range in size from small pocket computers to laptops; their applications vary from task organization and word processing to email and Internet browsing; and their prices have decreased in the past few years. Many of the ICT applications described above can be used on handheld computers, thereby benefiting poor communities;

(b) *Simputer*: This device was designed by a group of scientists in India. It is characterized by the simplicity of its interface and is mainly beneficial to people with poor literacy skills or with minimal computer experience. It is a mobile cost-effective computer platform that is relevant to various applications of mobile computing;¹⁶

(c) *Touch screens*: These are special monitors that allow users to make choices by touching icons or graphical buttons on the screen, thereby helping those unfamiliar with a computer mouse or keyboard;

(d) *Authentication technologies*: People with poor literacy skills can face obstacles in accessing computer networks as a result of authentication issues. They may need to type access information, for example, their username and password but do not know how to type. As a result, new authentication technologies must be investigated and implemented. Solutions include fingerprint recognition and transaction cards. The former allows users to access a network without requiring any knowledge of typing and the latter, which exist as magnetic cards and are used in banking and telecommunication applications, can be used to store personal information, hold digital cash or confirm identity;

¹⁵ ESCWA, *Using Information and Communication Technologies to Create Employment and Alleviate Poverty*, (E/ESCWA/ICTD/2004/1), p. 20.

¹⁶ The Simputer was designed by Encore Software. Available at: <http://www.ncoretech.com/simputer/index.html>.

(e) *Automation in agro-food processing*: ICTs and, more specifically, hardware and software tools can be used to monitor food processing, thereby enhancing quality and productivity;

(f) *Wireless technologies*: This hardware category includes wireless telecommunications and data networking devices and infrastructure, for example, mobile telephony systems and wireless fidelity (WiFi) networks. At present, the two most important standards for the wireless marketplace are the Wireless Application Protocol (WAP) and i-Mode. These standards are used to build web-enabled applications and sites for wireless technologies. Moreover, the spread of mobile phones in developing countries has contributed towards reducing the digital divide and raising long-term growth rates; and handset-makers are competing to develop cheap mobile phone devices for new markets in the developing world.¹⁷ The WiFi network is briefly reviewed in box 3 in relation to bridging the digital divide.

Box 3. WiFi network

Wireless fidelity (WiFi) is a component of the IEEE 802.11 standard for wireless local area network. It uses radio waves to connect hardware devices within local area networks. The simplicity and low cost of installing WiFi network are key factors in its success. In fact, connecting to a WiFi network requires only that a user insert an appropriate wireless card into a computer or a laptop, configure the latter, and use the device within approximately 90 metres of a WiFi access point.

Some communities have set up their own local community networks using WiFi to offer free Internet access. For example, the DakNet project uses a mobile access point mounted on a motorcycle with a direct connection to a hub dish in a nearby urban centre in Cambodia, thus serving remote areas that have no communications infrastructure. Another project is the Internet Village Motoman in India, which uses a similar access point to that of DakNet, but mounted on a bus. Both projects enable communities, including women and youth, to carry out Internet searches and access information on the Web.

Source: ESCWA, *Using Information and Communication Technologies to Create Employment and Alleviate Poverty*, (E/ESCWA/ICTD/2004/1), pp. 4-5.

C. DIGITAL ARABIC CONTENT

ICT applications and hardware technologies can only serve and empower impoverished communities when relevant digital content is fully developed on the Internet. Content is what mainly drives people to use ICTs, and without relevant content, ICT access rates will remain low, particularly among the poor. In developed countries, digital content has become an emerging industry; DAC, however, continues to be weak and online Arabic language users constitute less than 1 per cent of total online users in the world, despite the fact that the Arab population constitutes approximately 5 per cent of the total world population.¹⁸ In the digital age, DAC helps to preserve the Arabic language, facilitates its evolution and promotes cultural diversity, whilst also serving as a means of empowering the poor. The following DAC applications could be developed and produced to motivate use and enable users, particularly the poor, to maximize the benefits of ICT:

(a) *Digital video and audio*: These are effective and efficient methods for disseminating DAC,¹⁹ particularly given that they overcome the illiteracy hurdle that is most apparent among the poor;

¹⁷ According to a recent study, mobile phones raise long-term growth rates, their impact is twice as big in developing countries as in developed ones, and an extra 10 phones per 100 people in a typical developing country increases GDP growth by 0.6 percentage points. See *The Economist*, "The real digital divide" (12-18 March 2005), p. 11.

¹⁸ ESCWA, *Annual Review of Developments in Globalization and Regional Integration in the Countries of the ESCWA Region, 2003*, (E/ESCWA/GRID/2003/41).

¹⁹ Common distribution media are televisions, the Internet and computers.

(b) *Mobile applications and services*: These empower citizens and SMEs by enabling them to access information that best serves their needs;

(c) *E-learning and e-health*: These are classic applications aimed at combating illiteracy, building vocational skills and raising public health awareness;

(d) *Digital archiving*: This plays an important role in preserving local culture and promoting diversity; digital archiving includes refreshing, migration, encapsulation and adherence to standards.²⁰

D. ICT ENDEAVOURS RELATED TO EMPLOYMENT CREATION AND POVERTY ALLEVIATION

Software, hardware and DAC are major components in harnessing ICT for employment creation and poverty alleviation. By carefully selecting and combining these components, it is possible to devise ICT endeavours that are aimed at combating illiteracy, developing ICT literacy, building endogenous ICT skills, and achieving the desired positive effects for escaping from poverty and creating job opportunities. Endeavours are classified as targeting impoverished communities or SMEs and summarized below.

1. *ICT endeavours for impoverished communities*

A number of endeavours aimed at utilizing ICTs to tackle poverty, directly or indirectly are reviewed below.

(a) *Establishing ICT community centres*

ICT community centres are important in building and enhancing the ICT capacities of poor communities, and are specifically designed to tackle unemployment and poverty through the use of selected ICTs. Such community centres offer a number of basic and extended services. Basic services include literacy programmes, self-paced language courses, basic computer courses, computer skills certification courses, hardware and software support courses and vocational training. Extended services encompass e-health and e-commerce. The location of these centres is crucial, and must be chosen to attract the highest number of people, particularly with regard to disadvantaged communities in rural and urban areas. Particular attention must be afforded to the fact that ICT community centres are more likely to succeed when they are firmly based on partnerships involving local non-governmental organizations (NGOs), central and local authorities, national and international firms concerned with disseminating new technologies, and international organizations, including the United Nations.²¹ Consequently, building partnerships in this area in particular must be encouraged. One major concern in establishing ICT community centres in impoverished communities is securing electrical power. With this in mind, alternative systems for providing electrical power are illustrated in box 4.

Box 4. Alternative power systems

Alternative power systems can be used to provide electrical power to operate ICTs, particularly in poor and remote areas where there are electricity shortages. Some of these are reviewed below:

(a) *Solar energy*: Photovoltaic (PV) technology can be used to generate the power requirements for ICT devices. The output of typical PV modules ranges from a few watts (W) to more than 100 W depending on the surface area of the solar panel;

(b) *Wind power*: The use of this alternative power system is rather limited given that it can only operate in regions that experience regular winds. Wind turbines are environmentally friendly and have higher initial investment costs but less lifetime costs than conventional energy sources;

²⁰ ESCWA, *Harmonization of ICT Standards Related to Arabic Language Use in Information Society Applications*, (E/ESCWA/ICTD/2003/5).

²¹ ESCWA implemented three pilot multipurpose technology community centres in 2003, in Akkar, an underdeveloped region of Lebanon in collaboration with a local NGO, the public and private sectors, and regional organizations. The multipurpose technology community centres are in municipal buildings and offer language and computer literacy courses.

Box 4 (continued)

(c) *Micro-hydropower*: This depends on the flow of water to generate electricity and is considered a safe and secure investment, with comparatively lower costs than those incurred by solar and wind power systems. One major limitation, however, is the risk of rivers drying up;

(d) *Clockwork power*: This is based on winding a special type of spring that tightens up on a spool and subsequently converts mechanical energy into potential energy. This can be particularly useful in impoverished remote and rural areas, allowing them to receive flood warnings, health alerts and notice of aid activities.

Source: ESCWA, *Using Information and Communications Technologies to Create Employment and Alleviate Poverty*, (E/ESCWA/ICTD/2004/1), p. 22.

(b) *Using ICTs to deliver health care to disadvantaged communities*

The health needs of poor communities can be met by providing health-care workers with appropriate ICT tools. These can simplify data entry and transfer of information, improve reliability and facilitate processing, thereby reducing paperwork and enhancing the accuracy and organization of information. In addition, ICTs provide background and educational material that helps to improve health care and facilitates the tracking of the medical histories of specific cases. Many projects illustrate how ICTs are capable of improving health conditions in impoverished areas where health-care resources are scarce, for example, the Cyber-Paediatrician Project in Saint Louis, Senegal.²² This uses a portable computer and an Internet connection to provide effective help in a region with few paediatricians.

(c) *Using ICTs to promote employment*

ICTs have a direct effect on the capacity building of impoverished communities, particularly in terms of promoting employment. Indeed, ICT tools play a major role in facilitating the search for jobs. Poor communities are able to benefit from comparable databases, particularly when these include information regarding less-skilled labour opportunities with low literacy or educational requirements. Such databases can be referred to as labour market information systems, which provide details of vacant posts and notify people via email of recently available opportunities.

(d) *Enhancing government services*

ICTs can enhance government services by increasing access to public information and streamlining government procedures. E-government, in particular, is aimed at promoting the transparency of Governments, thereby increasing accountability and reducing corruption. E-government applications can be designed to help impoverished communities, by providing access to vital information on economic activities, for example, information regarding government subsidies, crop production and livestock breeding.

2. *ICT endeavours for SMEs*

ICTs, particularly the Internet, enable enterprises to tap into markets, increase capacity and productivity, and also conduct business operations anywhere and at anytime. Given that SMEs are a major source of income and of employment opportunities in developing countries, the following section is aimed at stimulating new thinking on expanding the use of ICTs among SMEs, and enhancing competitiveness while maintaining sustainable development.

²² See Sarbuland Khan, "By invitation: bridging the digital divide", *Newslink*, vol. 9, No. 3, (Fourth quarter, 2001). Available at: www.alcatel.com/newslink/0104/pdf/invitation.pdf.

In recent years, an increasing number of e-commerce sites have been established to improve the performance of SMEs, for example, Virtual Souk, PEOPLink and AfricanCraft.com.²³ Virtual Souk, which was officially inaugurated in Tunis in 1998, is a World Bank Institute initiative aimed at improving the economic conditions of disadvantaged communities in five Arab countries, namely, Egypt, Jordan, Lebanon, Morocco and Tunisia. It functions as a non-profit-making broker, thereby cutting out middlemen and increasing the returns of the producers. PEOPLink enables local artisans in Bangladesh, Guatemala, Haiti, India, Mali and Nepal to sell their products online to global markets. AfricanCraft.com offers information on African history, languages and culture through books, articles and online exhibitions.

E. ICT PROJECTS FROM SELECTED DEVELOPING COUNTRIES

Selected initiatives in developing countries that encompass various ICT applications, and which aim to create jobs and alleviate poverty are listed below:

(a) *Grameen Telecom's Village Phone Programme*: This programme, targeting rural areas of Bangladesh, provides modern digital wireless telecommunication services to some of the poorest people in the world. It encourages individuals, usually rural women, to purchase a telephone under an affordable financial scheme to provide telephone services to fellow members of the rural community;²⁴

(b) *Fishing in Saint Louis, Senegal*: In Senegal, particularly in Saint Louis, fishermen have been able to improve their safety and increase their revenues by accessing weather forecasts and transport schedules on the Internet before putting out to sea. In addition to providing vital weather forecasts to determine the best fishing times, the same website is used to advertise jobs to that community;²⁵

(c) *Greenstar*: Greenstar is a profit-making company that was founded in 1998. Its principal objectives are to deliver solar power, health, education, connectivity and environmental programmes to underprivileged villages in developing countries;

(d) *Mobile Community Telecentre, Kunya, Nigeria*:²⁶ The principal objective of this telecentre is to provide affordable access to the Internet in a region where there is an absence of electricity and telecommunications;

(e) *Developing Countries Farm Radio Network*: This is a non-profit organization based in Canada that currently works with approximately 500 radio broadcasters in more than 70 countries to combat poverty and provide food security;²⁷

(f) *Digital Village*: This is located in Alexandra, a poor district of Johannesburg, South Africa. The centre provides the surrounding community, schools, students and entrepreneurs with the opportunity to develop their computer skills, take advantage of the power of technology and improve their employment prospects;

(g) *Intel Computer Clubhouse Network*: The network was established in 1993. It consists of more than 60 clubhouses in 10 countries.²⁸ It is an online community that focuses on providing young people in low-income areas with opportunities to develop computer and technical skills, thereby assisting students in higher education and enhancing future career prospects.

²³ ESCWA, *Using Information and Communications Technologies to Create Employment and Alleviate Poverty*, (E/ESCWA/ICTD/2004/1), pp. 12-13.

²⁴ Canadian International Development Agency (CIDA), "Grameen Telecom's village phone programme: a multi-media case study" (March 2000). Available at: www.telecommons.com/villagephone/.

²⁵ This project is part of the Alcatel Digital Bridge Initiative, which was launched in Johannesburg, South Africa in November 2001. Available at: www.alcatel.com/lead/docs/Digital_Bridge.pdf.

²⁶ Internet references to this project refer to Kunyai, Nigeria.

²⁷ Developing Countries Farm Radio Network. Available at: www.farmradio.org/index.html.

²⁸ Intel, "Intel Computer Clubhouse Network". Available at: www.Intel.com/education/icc.

III. ICT INITIATIVES IN SELECTED ESCWA MEMBER COUNTRIES

This chapter reviews ICT initiatives for employment creation and poverty alleviation that have been implemented or were being implemented as of November 2004 in selected ESCWA members, namely, Egypt, Jordan, Lebanon, Palestine, Syrian Arab Republic and Yemen, and which were identified in the survey on ICT initiatives for poverty reduction and employment creation that was commissioned by ESCWA.

The survey highlighted a number of issues that have been helpful in formulating policy guidelines and recommendations for the implementation of future national and regional ICT projects geared towards employment creation and poverty alleviation. In addition, the initiatives identified in the survey serve as a baseline for monitoring the progress of future work. The compilation of these initiatives could serve as a foundation block for developing an online database that would provide fundamental information for stakeholders and also Governments of ESCWA member countries.

A. OVERVIEW OF IDENTIFIED INITIATIVES

As of November 2004, 48 ICT initiatives were identified in the selected ESCWA members as being directly related to employment creation and poverty alleviation (the annex to this study lists these initiatives by member). Issues related to the ICT initiatives identified in the survey are briefly reviewed below.

1. Location of initiative

The locations of the 48 ICT initiatives identified in the survey are listed in table 3, by ESCWA member. Jordan and Lebanon reported a higher number of initiatives as compared to the other selected members.

TABLE 3. ICT INITIATIVES, BY ESCWA MEMBER

ESCWA member	Total
Egypt	8
Jordan	13
Lebanon	18
Palestine	2
Syrian Arab Republic	5
Yemen	2
Total	48

2. Communities served

Most of the initiatives identified in the survey targeted youth and women, and were generally located in impoverished rural areas. Only 11 of the 48 initiatives were aimed at the disabled, with one serving the blind, namely, ICT in the Arab Region for the Blind initiative, which was implemented in Egypt. Table 4 provides a breakdown of initiatives by target groups.

TABLE 4. ICT INITIATIVES, BY ESCWA MEMBER VERSUS TARGET GROUPS

Target groups	Egypt	Jordan	Lebanon	Palestine	Syrian Arab Republic	Yemen	Total initiatives identified
Rural population	6	7	11	1	5	2	32
Farmers	4	4	6		4	2	20
Industrial		4	6		2	1	13
Craftsmen	5	5	7		2	2	21
Suburban population	3	8	6		4	1	22
The urban employed	2	7	7		4	1	21
Women	6	11	14		5	2	38

TABLE 4 (continued)

Target groups	Egypt	Jordan	Lebanon	Palestine	Syrian Arab Republic	Yemen	Total initiatives identified
Youth	7	11	17	2	5	2	44
The disabled	1	3	4		2	1	11
The elderly	1	4	3		4	1	13
The illiterate	5	4	2		3	2	16
Micro-enterprises	5	4	4		3	2	18
School dropouts	5	4	7		4	2	22
The unemployed	4	8	6		1	1	20
Trainers/educators	3	7	4	2	1		17
Refugees			2	1			3

3. Services offered

The majority of ICT initiatives identified in the survey directly contributing to employment creation and poverty alleviation were in the form of training programmes or community centres established for the purpose of eradicating information technology (IT) illiteracy or providing access to ICT services, usually the Internet. In general, initiatives offered the following services:

- (a) Basic ICT training;
- (b) Access to ICT, namely, the Internet;
- (c) Access to knowledge, which refers to the development of portals or information content relevant to local and national human development requirements;
- (d) Advanced or specialized capacity building, which refers to advanced ICT training, specialized software and hardware training (including networking), communication and soft skill development, or specialized counselling programmes;
- (e) Employment preparatory assistance groups, which refers to services that either link training efforts directly to employment or help to prepare individuals for the job-hunting experience, for example, by developing computer skills or preparing curricula vitae;
- (f) Donations, which refers to contributions of computer equipment or scholarship grants;
- (g) E-related services, which refers to the preparation for or the use of e-health, e-learning, e-government or other similar electronically based service provision schemes. Very few of these were identified.

Table 5 provides a summary of ICT initiatives categorized by services and by ESCWA member. A total of 41 of 48 initiatives were geared towards basic ICT training.

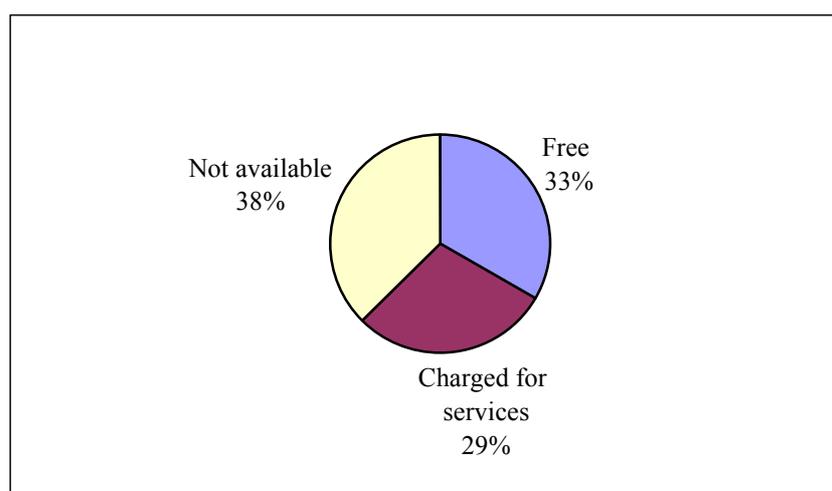
TABLE 5. ICT INITIATIVES, BY SERVICES AND ESCWA MEMBER

Services	Egypt	Jordan	Lebanon	Palestine	Syrian Arab Republic	Yemen	Total
Basic ICT training	7	12	13	2	5	2	41
Access to ICT	5	8	12	2	4	2	33
Access to knowledge	3		1		2	1	7
Advanced/specialized capacity building	6	6	7	1	1	1	22
Employment Preparatory Assistance	4	6	7	1	1	1	20
Donations			3				3
E-related services	2	2	1			1	6

3. Charging beneficiaries for services

Figure II illustrates the distribution of initiatives identified in the survey, which charged beneficiaries for their services. It shows that 29 per cent of the initiatives, which is equivalent to 14 initiatives, charged a nominal fee for training courses and walk-in services. The fees varied according to the services offered, the communities targeted and the partnerships involved, and in some cases subsidies were provided to the poorest candidates. In almost all of these cases, services were in the form of basic computer training and access to the Internet. Out of the remaining 34 initiatives, 16 initiatives offered their services free of charge, while data on the cost of services were lacking for the other 18 initiatives. In some cases, it was noted that charging a symbolic fee for certain services encouraged people to take the initiative more seriously, and was perhaps beneficial in increasing commitment from local participants.

Figure II. Distribution of initiatives, by cost of charge



4. Source of financing and total budget

Table 6 lists the sources of financing for the 48 initiatives in decreasing order. International organizations and the public and private sectors are the major sources of financing, followed by local NGOs and finally regional organizations and philanthropists.

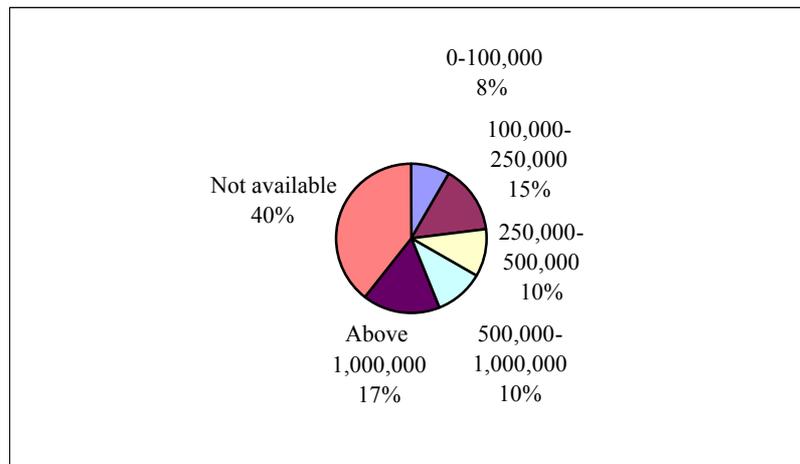
In terms of international organizations, the main contributors were the United Nations Development Programme (UNDP), the United States Agency for International Development (USAID) and the United Nations Development Fund for Women. In terms of private sector participants, Microsoft and Cisco were the main project partners in the majority of cases.

From a cost perspective, figure III provides a graphical illustration of the budget distribution for the 48 initiatives. The budget of these initiatives ranges from tens of thousands to several million United States dollars. Contributions towards the initiatives were not necessarily confined to monetary inputs, but also took other forms, for example, in-kind contributions.

TABLE 6. SOURCES OF FINANCING

Contributor	Number of initiatives
International organizations	27
Public sector	23
Private sector	17
Local NGOs	11
Philanthropists	6
Regional organizations	3

Figure III. Budget of identified ICT initiatives
(United States dollars)



B. CASE STUDIES

Two successful initiatives are reviewed as case studies in detail below. They are worthy of note for the examples they provide in terms of their expansion strategies and sustainability and also for the fact that they are success stories of initiatives launched by the private sector on the one hand, and the public sector on the other.

The first of these is the Professional Computer Association of Lebanon (PCA) Internet Point of Presence (PiPOP), which establishes computer and Internet access centres throughout Lebanon that deliver training courses in basic computer applications and Internet skills. The PiPOP initiative was selected for its success in maintaining sustainable operations and for being largely supported by the private sector.

The other is the Jordan Information Technology Community Centres (JITCC) initiative, which provides equal opportunities to Jordanians with regard to benefiting from the potential of ICT as a tool for sustainable human development. This initiative, which is largely supported by the Government, has also been successful in terms of sustainability.

1. *Professional Computer Association of Lebanon Internet Point of Presence*

The PiPOP initiative was launched in Lebanon in 2002 by PCA with the aim of addressing the digital divide in the country. As of January 2005, the initiative had established 30 computer and Internet access centres across Lebanon, and there are plans to launch up to 40 more facilities.²⁹

The short-term objectives of PiPOP include the following: (a) creating several hubs in every region, thereby providing affordable access to technology for the maximum number of people of all ages; and (b) providing communities with small training centres, thereby offering access to new technology.

The medium-term objectives of the initiative include the following: (a) improving standards of living by constructing an economic-oriented website for every village; and (b) helping to create new job opportunities, discovering new potential and bridging the gap between urban and rural areas.³⁰

With this in mind, PiPOP serves rural populations, women, youth, the unemployed, farmers, industrial workers and craftsmen. This initiative is being realized with the assistance of various parties, and a number of local private companies. In addition to PCA, the main sources of financing for PiPOP include: USAID; SRI International, an independent non-profit research institute; the Business Software Alliance, an

²⁹ Based on an interview with Nizar Zakka, director of the Professional Computer Association of Lebanon (PCA), 14 February 2005.

³⁰ PCA, "PiPOP initiative". Available at: <http://www.pipop.org/>.

international organization; Microsoft; and Cyberia and IncoNet Data Management, two local Internet service providers (ISPs).

The success of the PiPOP initiative can be attributed to the fact that it is based on a business model that is mainly supported by the private sector. PCA, which collaborates with the public sector, local NGOs, civil societies and international organizations, selects the most suitable partners for each new facility. The business model does not impose any contractual constraints on hosting a new facility. The main criteria for setting up a new facility are lack of access to ICT in the requesting communities, being able to establish a suitable level of involvement and degree of commitment to the initiative, and at a later stage, ascertaining a willingness to support the operations of the newly established facility. PCA also offers management services to all the facilities, thereby enabling better organization of operations and maintaining the quality of delivered services.

New facilities are equipped with approximately six computers, the necessary network equipment, one printer, an Internet subscription sponsored by a local ISP, a website, train-the-trainers material and on-site support. The hosting community usually provides the premises, human resources, content for the website, and contributes towards the financial resources. The average cost of running a centre ranges from \$1,500 to \$2,000 per month.

A typical PiPOP centre delivers various services to the community, namely, Internet access, instructor-led computer training and basic e-commerce. The website that is created for each centre is an integral component of a facility, and includes information pertaining to each community, usually news, events, a directory and products. It can also display community history, geography, agro-industry resources as well as deaths, weddings and birth announcements. Links to tourist areas and websites are also provided. These centres, which offer free email addresses to each user through the website, create linkages within the community and also among the community, the diaspora and other communities, thereby reducing the digital divide.

Centres can also provide other important services. For example, they have been used to count votes during municipality elections or as IT camps during the summer. PCA hopes that these centres can be expanded to deliver e-government applications and banking services to remote and disadvantaged communities.

PCA monitors and evaluates the progress of its centres by compiling statistics, which are available online from its website and from individual centre websites,³¹ and through workshops. Within that context a workshop held in June 2004 discussed and evaluated operations, and produced a final report.

Box 5 details an initiative that is being launched by PCA to increase access to information and improve the PC penetration rate in Lebanon.

Box 5. PC 4 All initiative

The Professional Computer Association of Lebanon is spearheading an initiative that is aimed at ensuring access to affordable personal computers (PCs) for all people, with a view to increasing access to information and the PC penetration rate in Lebanon. Launched in 2005, the PC 4 All initiative entails the establishment of a firm that assembles PCs, and the enlisting of a number of private companies as partners that will also be capable of eventually handling sales and distribution.

A total of 43 companies covering the majority of the country have thus far indicated their willingness to participate in the initiative. Negotiations with such companies as Microsoft and Intel are aimed at securing as many affordable PCs as possible. The estimated price range of a PC, including the Microsoft operating system and office licence, ranges from \$400 to \$500. A similar scheme is in operation in Egypt. Bearing this in mind, it would be useful to determine the value of a relevant ICT indicator, namely, the cost of PCs relative to average individual incomes, thereby facilitating the adoption of an appropriate pricing strategy.

Source: ESCWA interview with Nizar Zakka, director of the Professional Computer Association of Lebanon, 14 February 2005.

³¹ For example, see the Beit Mery PiPOP Centre website. Available at: <http://beitmery.pipop.org/Statistics.asp>.

2. Jordan Information Technology Community Centres project³²

This initiative targets the Jordanian population and is aimed at creating a national information network. It was launched by the Ministry of Planning and International Cooperation in Jordan and UNDP, and involves the establishment of IT community centres, also known as knowledge stations, throughout Jordan to generate ICT awareness, provide access to ICT and provide training in new age skills. The objectives of JITCC include bridging the digital divide among various communities and enhancing capacity building with regard to local community development while promoting economic opportunities.

The importance of the JITCC project is that it is part of the national education strategy in Jordan. The initiative is a direct implementation of the vision of King Abdullah II for Jordanian youth, which aims to ensure that everyone in the country is computer literate and that every school and community has access to the Internet and computers, with the aim of building a better workforce. A large number of national initiatives, particularly those that are e-government related, are expected to rely heavily on the success of JITCC centres. The main partners in this initiative include the Ministry of Planning and International Cooperation, the National Information Technology Centre, the King Abdullah II Fund for Development, and various host agencies around the country.

With an estimated total budget of \$2.9 million,³³ the major sources of financing for this initiative are the King Abdullah II Fund for Development, UNDP and Arab Gulf Programme for United Nations Development Organizations. In-kind contributions from various Governments and private sector organizations have also enabled the implementation of this initiative.

The actual implementation of the JITCC initiative was entrusted to the Project Management Unit within the National Information Technology Centre. A study was undertaken by the Project Management Unit to assess the number of knowledge station centres that needed to be established and their locations. Four guiding criteria were used, namely, national coverage, population density, available infrastructure, and the presence of an established and capable host organization. The Community Mobilization Section was established in the Project Management Unit to meet the social needs of the communities served by the knowledge stations. By integrating local communities into the planning process, the Community Mobilization Section is seeking to foster the creation of sustainable centres.

The first knowledge station was established in October 2000, and as of May 2003, the JITCC initiative had established 75 knowledge stations throughout Jordan. Most of these knowledge stations focus on less developed, information-poor areas with the goal of harnessing ICTs to augment living standards in those areas.

The knowledge stations provide a number of services, including walk-in services, basic computer training and advanced computer courses. The latter tackle subjects related to SMEs, health care, e-government and entrepreneurship, and create awareness on such social issues as gender discrimination and child development. Walk-in services include photocopying, typing and Internet access, and also community access services for other programmes, including the Development and Employment Fund and the family health programme. Nominal fees are charged for training courses and walk-in services. The fees vary according to the communities, and subsidies are provided to the poorest families.

Knowledge stations have delivered more than 6,000 training courses, trained 57,780 people, most of them female, and delivered walk-in services to 30,100 during the period 2000-2004.³⁴

³² This section is largely based on information from the Government of Jordan website, *Knowledge Stations*. Available at: <http://www.ks.gov.jo/>.

³³ Nasser Khalaf, manager of the Project Management Unit, National Information System of Jordan.

³⁴ Government of Jordan, *Knowledge Stations* (figures are regularly updated). Available at: <http://www.ks.gov.jo/stats.htm>.

The success and sustainability of the JITCC initiative is based on the fact that the following key actions are carried out:

(a) Planning for an autonomous JITCC network, which recognizes that remote and poor areas require additional support and, therefore, that the sustainability model needs to focus on developing the provision of demand-driven services;

(b) Involving local communities as much as possible, which is ensured by preparing and distributing a terms of reference document summarizing the needs assessment results and a sustainability study per community;

(c) Serving local communities, which is achieved by tailoring the training delivered in the centres to the needs of a particular community and using knowledge stations to provide assistance to other programmes that target particular segments of the population;

(d) Developing monitoring systems, which could include, for example, a financial tracking system and a comprehensive JITCC user database;

(e) Carrying out proper project management, which is achieved by developing annual business plans that reflect a sustainability roadmap for each centre within a reasonable timeframe. The plans include future satellite centres to be established in the medium term, and which are aimed at catering to the needs of less densely populated areas.

In conclusion, the JITCC project is a foundation block in efforts aimed at bridging the digital divide in Jordan, empowering rural communities through the application of ICTs, improving professional skills and developing community services.

C. TRENDS AND CHALLENGES

The use of ICTs in employment creation and poverty alleviation in the region is still at the early stages of development. Many of the ICT initiatives that were identified in the survey are in the form of community centres that provide access to ICTs, build capabilities and deliver training. The majority of these initiatives were established between 2001 and 2004, which means that the issue of their sustainability must be investigated in the next couple of years, particularly with regard to initiatives that provide free services. The primary targets of the majority of initiatives were youth, women and the rural population. Most of the initiatives identified in the survey were based in Jordan and Lebanon; very few initiatives were implemented in Oman, Saudi Arabia and Yemen. As noted above, international organizations and the public sector provided the majority of the funding for the initiatives, followed by the private sector and finally local NGOs.

The challenges preventing impoverished communities from benefiting from the various applications of ICTs to improve their human development level and gradually become an integral part of the knowledge society are summarized below.

(a) *Restrictive government policies*

Most countries in the ESCWA region are not adopting enough pro-poor policies aimed at encouraging the use of ICTs for employment creation and poverty alleviation. Despite the fact that the region has enormous potential to develop and use its oil revenues to eradicate poverty and combat illiteracy, legal and regulatory barriers continue to limit equitable access to ICTs, which is capable of empowering impoverished and marginalized communities. While some countries, mainly through the World Summit on the Information Society process, have formulated policies to harness ICTs for human development, the majority of ESCWA member countries continue to suffer from a lack of enforcement mechanisms, which is hindering the implementation progress.

(b) *Lack of affordable communication services*

The lack of affordable communication services, which is most noticeable in rural and remote areas and in slums or in the illegal settlements of major cities, is affecting the ability of marginalized and impoverished communities to harness ICTs to improve their livelihoods. While some ESCWA member countries have taken positive steps to ensure the affordability of Internet subscription, including Egypt and the Syrian Arab Republic, it must be noted that Internet access cannot increase in areas where there is no telecommunications infrastructure.

(c) *High cost of ICTs*

Purchasing ICT hardware equipment and software licences is still beyond the reach of the poor, as is ownership of PCs, and the ability to upgrade and maintain them. While initiatives have been launched in some ESCWA member countries aimed at providing every home with a computer, ICT penetration rates continue to lag below the desired level.

(d) *Irrelevant content*

The ESCWA region continues to suffer from a lack of DAC. Moreover, relevant content capable of empowering impoverished communities and serving the unemployed is almost totally absent. Unfortunately, national or regional industries to develop DAC are also virtually non-existent.

(e) *Illiteracy*

The high level of illiteracy in most impoverished communities is delaying the dissemination of ICTs and the assimilation of the benefits of such online applications as e-government and e-commerce.

(f) *Sustainability of projects*

The biggest challenge for project implementation is that of economic sustainability. Very few projects for employment creation and poverty alleviation are economically self-sufficient, owing to the fact that most services are delivered free of charge or at a nominal fee to ensure that they are affordable to the poor. Sustainability of projects is usually associated with unique circumstances that are not broadly replicable; each project has to determine what mix of appropriate services to provide for its community with a view to maintaining sustainable operations without compromising quality.

IV. IMPLEMENTATION FRAMEWORK, MODALITIES AND APPROACHES

The concept of using ICTs for employment creation and poverty alleviation requires the identification of key development challenges pertaining to each country or impoverished community and then investigating and analysing how ICTs, as a tool, can have a positive and sustainable impact in combating poverty and creating employment.

ICT is not an end in itself, and therefore initiatives must be designed to use ICTs as a powerful tool that can produce effective results when applied comprehensively in an overall development strategy. No “one-size-fits-all” approach has proven effective in using ICTs for poverty alleviation. Moreover, poverty in the ESCWA region varies by country and level of economic accomplishment. ICTs cannot eliminate the need for political stability, for example in Iraq and Palestine, nor can it eliminate illiteracy, which is a problem in Egypt.

A. ROLE OF STAKEHOLDERS

All stakeholders, through the proper channels and media, must be involved one way or another in planning, designing, implementing and evaluating ICT initiatives for employment creation and poverty alleviation (see figure IV). Responsibilities must be divided among stakeholders based on the value-added they can provide, thereby nourishing the idea of ownership and instigating a national dialogue on the applications of ICTs for employment creation and poverty alleviation. Potential stakeholders and a brief description of their roles are listed below:

(a) Governments, which define an enabling policy and legislative framework, and also allocate public resources;

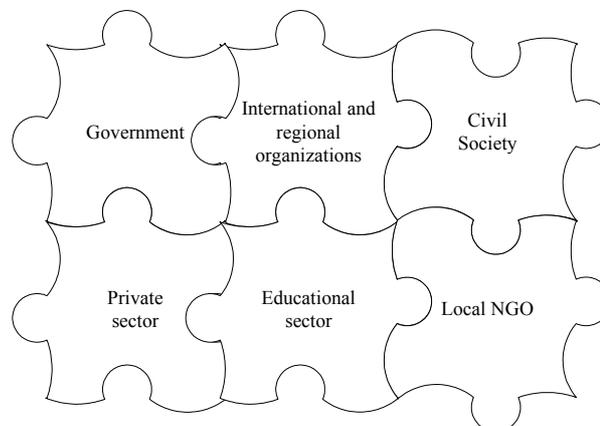
(b) International and regional organizations, which act as catalysts and provide the framework within which initiatives on employment creation and poverty alleviation are developed;

(c) Private sector, which provides technical expertise, business sustainability and is able to develop new and existing markets, particularly SMEs;

(d) Civil society and local NGOs, which establish connections with local and regional communities to promote the use of ICTs and raise awareness, and participate in assessing needs at the grass-roots level and also within the implementation and monitoring processes. Civil society involvement contributes to the creation of more pluralistic systems;

(e) Education sector, which educates, disseminates knowledge and conducts research in various innovative solutions using different poverty alleviation implementation modalities.

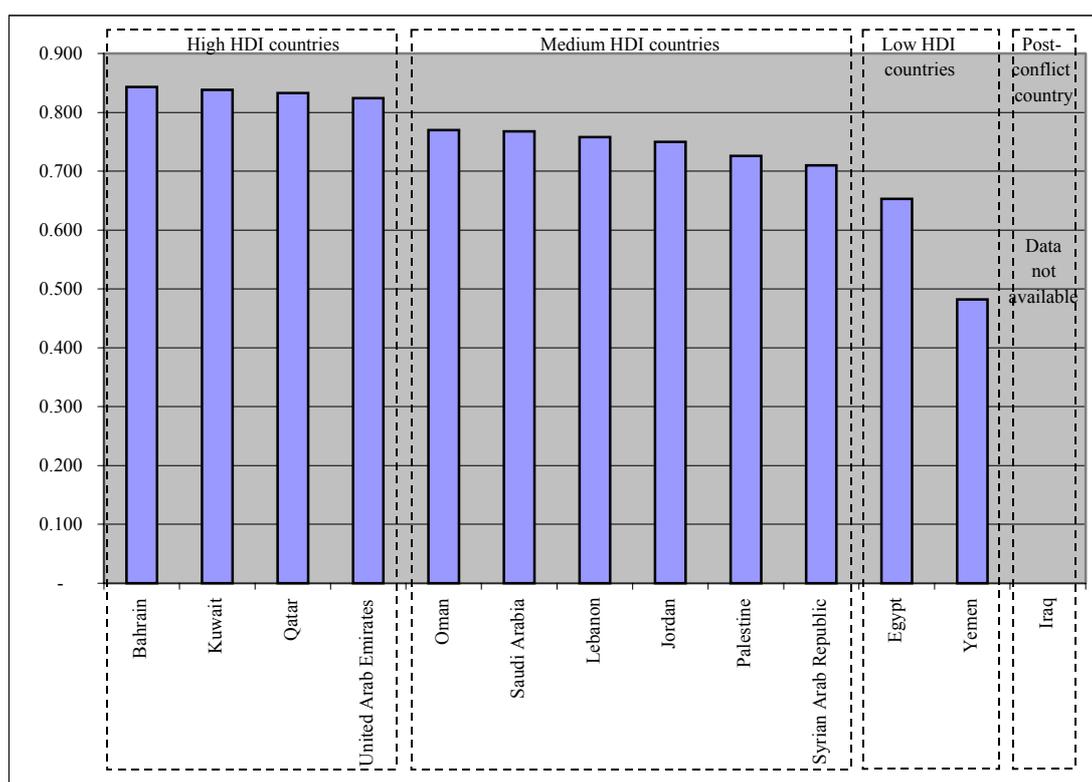
Figure IV. Potential partners



B. IMPLEMENTATION FRAMEWORK

Figure V depicts four main country clusters, which are conceived within a framework based on HDI grouping, and which categorize member countries in terms of how urgently they must adopt the implementation modalities and approaches for the ICT initiatives proposed below. The clusters listed below are ordered from most urgent to least urgent, namely: (a) The post-conflict countries cluster; (b) The low HDI countries cluster; (c) The medium development countries cluster; and (d) The high HDI countries cluster.

Figure V. Human Development Index for ESCWA members, 2002



Source: ESCWA, based on information from UNDP, *Human Development Report 2004* (New York, UNDP, 2004).

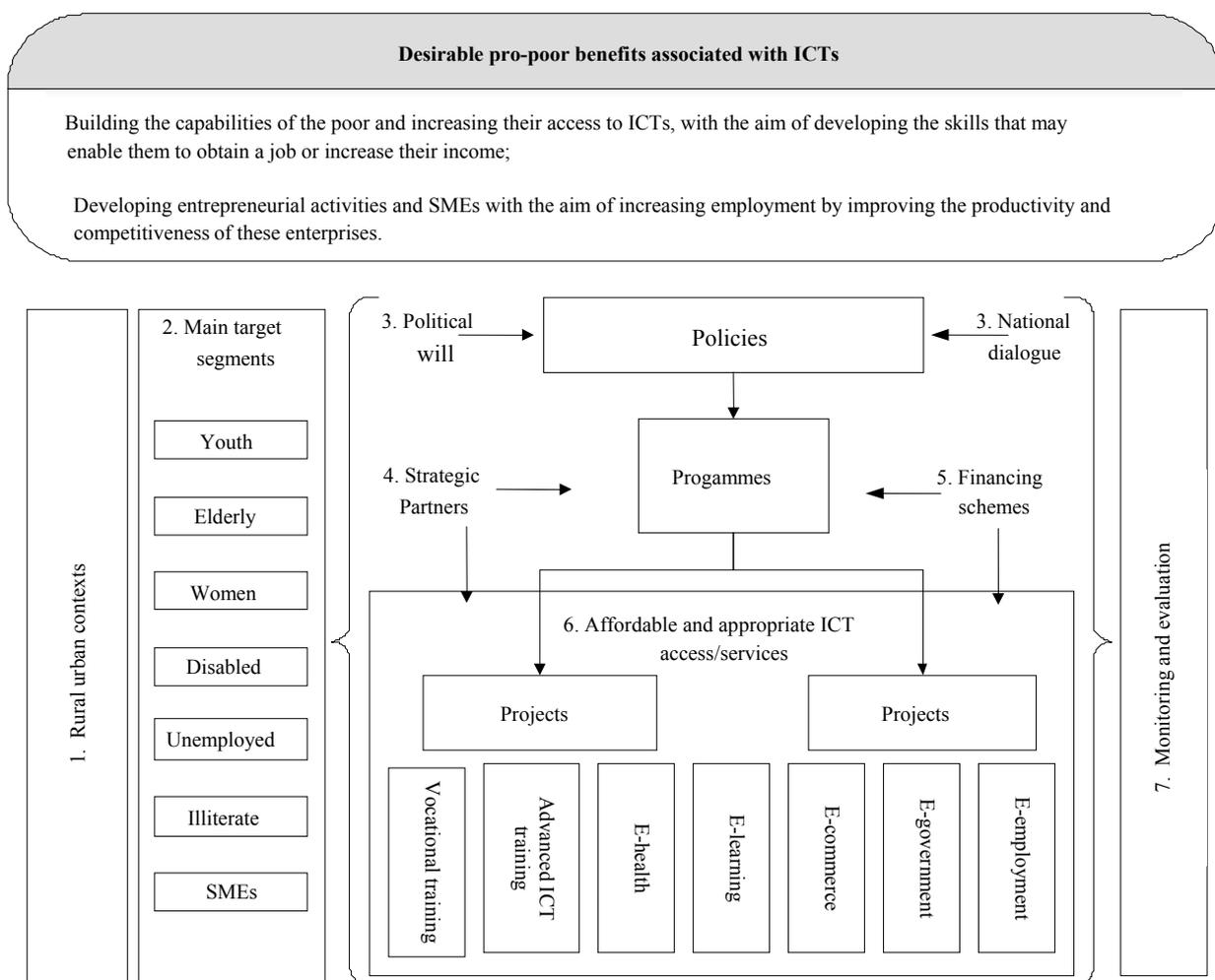
C. IMPLEMENTATION MODALITIES

This section proposes modalities for implementing ICT initiatives for employment creation and poverty alleviation. With regard to the modalities proposed, ICT is recognized as an agent of change in that it does not create change but more often acts as a catalyst for triggering change. This role as an agent of change is usually coupled with a change in the mindset of people seeking information and knowledge or conducting business. In this respect, capacity building is a de facto service that must be included in all ICTs for employment creation and poverty alleviation initiatives, particularly given the fact that impoverished communities are not familiar with the numerous applications that are offered through ICTs.

With the above in mind, raising awareness on the part of policymakers with regard to harnessing ICTs for poverty alleviation is a key factor in helping the poor and the unemployed. The objective is to create the political will and trigger a national dialogue among major stakeholders in order to produce an enabling environment and formulate suitable policies for encouraging and disseminating ICTs. Furthermore, government support is vital in increasing the visibility of certain issues and accessing international development programmes.

In the ESCWA region, statistics related to ICT diffusion usually pertain to national averages. More detailed and accurate surveys must be conducted for targeted areas where employment must be created and poverty reduced. In this context, the national poverty line, the Human Poverty Index (HPI-1)³⁵ and the Gini coefficient³⁶ constitute useful indicators for monitoring the progress of work and for providing a preliminary snapshot of current issues in selected countries or areas.

Figure VI. Implementation modalities



As illustrated in figure VI, the proposed implementation modalities focus on alleviating poverty in Western Asia from two main perspectives. The first perspective is aimed at empowering and building the capabilities of the poor through the use of ICTs, thereby improving opportunities for increasing their income. The second perspective, which targets the development of entrepreneurial activities and SMEs, is aimed at increasing employment in such enterprises by improving their productivity and competitiveness. Some modalities will adopt one perspective, while others will combine the two; in both cases, the following considerations must be taken into account when devising plans of actions:

³⁵ This is a composite index measuring deprivation in the three basic dimensions that are outlined in the Human Development Index, namely, a long and healthy life, knowledge and a decent standard of living. See UNDP, *Human Development Reports*. Available at: http://www.undp.org/hdr2003/indicator/indic_16_1_1.html.

³⁶ The Gini coefficient is a measure of the income inequality in a society. It is a number between 0 and 1, where 0 means perfect equality, or in other words, everyone has the same income, and 1 means perfect inequality, namely, that one person has all the income, everyone else earns nothing. See *Wikipedia*. Available at: http://en.wikipedia.org/wiki/Gini_coefficient.

(a) *Urban versus rural contexts*: Poverty and unemployment must be tackled in different ways according to whether they occur in a rural or urban context as this determines the nature of deficiencies in livelihood resources, living standards and access to infrastructure. In other words, ICT initiatives for employment creation and poverty alleviation must take into consideration whether the target area is urban or rural, and then identify which segments must be served in order to ensure a better focus and therefore produce positive measurable results;

(b) *Main target segments*: Poverty and unemployment issues can be better understood by dividing the poor strata of the population into seven, potentially overlapping segments, namely, youth, elderly, women, disabled, unemployed, the illiterate and SMEs. Given that each impoverished community has its own specificities, generic solutions do not necessarily always have the desired impact; for this reason, the suggested categorization enables a better understanding of the problems and needs of each segment and therefore contributes towards the creation of suitable ICT projects, incorporating the fact that some projects will end up serving more than one segment;

(c) *Political will and national dialogue*: Major stakeholders must become involved in the process of resolving weaknesses in local economic and social structures as early as possible during the policy formulation stage. Each policy will have a number of programmes, and each programme will encompass a number of relevant projects. It is envisaged that each programme will have a coordinating team, which would be involved in project formulation and promotion in addition to partnership development. The programme coordinating team also works on creating synergies among established projects by trying to avoid duplication and inefficiencies;

(d) *Strategic partners*: Participatory activity and continued support from stakeholders must be emphasized during the implementation process, and, whenever possible, local communities must be included in the design of low-cost ICT access solutions and encouraged to take part in the decision-making process with regard to issues related to the daily operations of a project and the services it will deliver;

(e) *Financing schemes*: Various global initiatives and international organizations are willing to provide assistance to developing countries in bridging the digital divide and promoting ICTs for economic and social development. Aid can be offered as a financial grant or loan, technical assistance or as in-kind contributions. Microfinancing is another important source of funding that enables individuals and SMEs to benefit from value-added ICT solutions that encourage entrepreneurial activities;

(f) *Affordable and appropriate ICT access/services*: ICT services for employment creation and poverty alleviation can be grouped into seven categories, namely, advanced ICT training, vocational training, e-learning, e-health, e-commerce, e-government and e-employment. This categorization provides a structure that can be used to identify ICT solutions in such a way that best serves the segments within targeted impoverished communities. The desirable pro-poor results associated with ICTs can be manifested in the form of access to information, empowerment, development of skilled labour, sustainable livelihood, provision of basic health services and combating illiteracy;

(g) *Monitoring and evaluation*: This is key to judging the progress of work, claiming success and improving future efforts. Evaluation improves effectiveness by establishing clear links between planning, implementation and results. The monitoring and evaluation process is aimed at sharing information and providing resources for people and organizations that work to assess and improve the effectiveness of projects and programmes. It helps to extract, from previous and current activities, significant information that can be used as the basis for programmatic fine-tuning, reorientation and planning. Certain desirable success factors are the subject of particular scrutiny during this stage, including strategic relevance of the project at hand, sustainability of operations, impact of results as compared to desired indicators of achievement, innovativeness in the use of ICT, replication of the project model in other similar impoverished communities, and the transferability of ownership to local communities.

With the above in mind, typical implementation modalities will target one or more of the seven segments in a given impoverished community; forge partnerships with the private sector, local NGOs and local municipalities or public schools; allocate financing; and assign a team to each project. Moreover, a

variety of services answer the needs of targeted segments, for example, customized e-commerce applications for SMEs, or vocational training for youth and women. Nominal fees must be well defined to maintain sustainability. In other cases, suggested implementation modalities will focus more strongly on providing appropriate technologies and free access to ICTs, for example, free services for accessing the Internet and delivering computer-based ICT literacy training. In this regard, continuous funding might be necessary to sustain projects, particularly those implemented in the poorest communities.

It is extremely important and also a major challenge to assure the sustainability of implemented projects. Typical modalities must strengthen the capacity of local communities by empowering them to continue their own operations and achieve sustainable pro-poor growth. This process, also known as participatory partnership, enables people to become leading actors in their own development. Franchising is another possibility in cases where entrepreneurial skills are developed and market size produces enough volume to support such a model. In some cases, people are advised to devise feasibility studies and business plans, which can be presented to donors, and which promote pro-poor ICT projects to Governments, NGOs, international organizations and the private sector.

In the context of the above, member countries are encouraged to do the following with regard to implementing ICT initiatives for employment creation and poverty alleviation in the ESCWA region:

- (a) Define the frequency of delivering certain advanced ICTs and vocational training so that local and regional market demand will not be oversupplied;
- (b) Determine the most suitable nominal fees for attendants to ensure that sustainable operations are maintained;
- (c) Include the provision of counselling services to encourage the repeated use of services and to build confidence to inspire the momentum needed for successful operations;
- (d) Exchange information to, from and within impoverished communities, so that the poor will not only receive information but will also share local knowledge with other communities;
- (e) Maintain the presence of intermediaries, despite the fact that ICTs usually enable the bypassing of intermediary organizations or persons; such entities might be a necessary mechanism in certain cases, at least in the near future, to organize the local supply of goods and services and to act as clearing houses to assure quality and to generate the necessary volume for external markets;
- (f) Build the capabilities of SMEs, which are the main source of employment creation in rural areas, particularly in countries with a low to medium HDI;
- (g) Establish effective linkages along the value chain that is generated as a result of any ICT-based project. These linkages are mandatory for all ICT-based projects in that they supplement the technical output with the necessary business alliances and networks for sustaining an economically viable structure and forging effective sales and distribution channels;
- (h) Develop, in impoverished communities, a culture for seeking information, thereby empowering them with knowledge;
- (i) Complete a full year before launching more ICT-based services within the same area with the aim of fine-tuning the selected services and optimizing the revenue structure in line with maintaining sustainable operations.

D. IMPLEMENTATION APPROACHES

Three implementation approaches are reviewed below, namely, the bottom-up, top-down and hybrid approaches, with the aim of complementing the implementation modalities described above and addressing

the issue of the various country clusters proposed within the framework based on HDI grouping (see chapter IV, section B above).³⁷

1. Bottom-up approach: role of grass-roots organizations

This approach, which is recommended for countries with low and medium HDIs, capitalizes on initiatives launched by civil society institutions or the private sector to improve the status of impoverished communities. The main advantages of this approach are its ability to produce short-term positive results in poor communities and to supplement the lack of resources of local Government authorities.

Moreover, this approach capitalizes on the strong relationship among civil society institutions, the private sector and community leaders to initiate, maintain and reinforce structures that serve impoverished communities. Typical relationships in the region are based on personal acquaintances between a community leader and civil society or private sector representative, or in the form of donations from philanthropists to help to develop a particular area or community.

A methodology for the most effective implementation of projects using the bottom-up approach is outlined below:

- (a) Identify the priority projects for employment creation and poverty alleviation to be implemented in a selected community or area, in consultation with member countries, and regional and national NGOs;
- (b) Produce feasibility studies and detailed business plans;
- (c) Establish partnerships with local and regional stakeholders;
- (d) Allocate necessary funds;
- (e) Select pilot projects;
- (f) Deliver technical assistance and training;
- (g) Implement projects;
- (h) Fine-tune the whole process by means of lessons learned during the implementation of pilot projects;
- (i) Disseminate these projects in other communities or areas.

The results of this approach are small and fragmented initiatives/projects that are, in most cases, reactions to grass-roots activities aimed at resolving a condition that is limited in scale and scope. The outcomes of the bottom-up approach, which have a mushrooming effect, pave the way for launching national and regional initiatives. It is worth noting that the bottom-up approach does not have to be restricted to a single country; it can also be adopted by international or regional organizations to trigger pilot projects aimed at building the capabilities of local Governments and NGOs, as well as creating a successful prototype that sparks the necessary political will to use ICTs for employment creation and poverty alleviation.

2. Top-down approach: role of policymakers

This approach, which is pertinent to all ESCWA member countries, pursues the implementation of policies that are based on the need to resolve the weaknesses of economic and social structures at the

³⁷ This section is based on “ICT for poverty reduction and employment creation in Western Asia—a strategic plan” (E/ESCWA/ICTD/2004/WG.1/4), a paper presented to the Roundtable on ICT as an Enabler for Economic Development (Beirut, 29-30 April 2004).

national level by promoting an enabling environment for promoting ICT-based initiatives geared towards employment creation and poverty alleviation. Governments must encourage grass-roots organizations to effect substantive changes in the lives of poor people and to create jobs.

The results of this approach take the form of long-term initiatives or projects that are aimed at resolving conditions that are large in scale and scope. The outcomes of the top-down approach support initiatives that have already been implemented by civil societies. An example of a typical project that can result from a top-down approach is the development of ICT infrastructure that connects impoverished and isolated segments of the population to main cities, industrial areas and the education sector.

Suggested actions for effectively implementing initiatives aimed at harnessing ICTs for employment creation and poverty alleviation within the framework of the top-down approach are outlined below, and related initiatives are suggested in some cases:³⁸

(a) Investigate the national income poverty line³⁹ and unemployment rate for each country to set a well-defined baseline for monitoring the progress of work and supporting the decision-making process of policymakers. Recent values for these two indicators are not up-to-date and do not exist in most ESCWA member countries;

(b) Invest in ICT infrastructure through the deployment of a national broadband backbone to cover a wide area and link isolated segments of the population. This initiative can only be successful when bolstered by Government support in offering competitive pricing for telecommunications services. For example, Egypt has forged a pioneering agreement with an ISP to offer free Internet access to its citizens;

(c) Develop policies to boost the ICT sector and industry with the aim of providing legal security, maintaining privacy of information, allowing e-payment, enforcing intellectual property rights (bearing in mind, however, that open sourcing might encourage broader ICT use), supporting e-signatures and fighting cyber crime while increasing the traffic of electronic transactions over the Internet;

(d) Develop partnerships with the private sector to encourage them to inject technical and financial resources into government-based ICT initiatives. ESCWA member countries must adopt policies that encourage entrepreneurial development that specifically contributes to the creation of employment for the local population, for example, tax holidays and microfinance schemes;

(e) Undertake research and development to increase national research management skills, build leading ICT capabilities and produce commercial opportunities. Typical initiatives could take the form of ICT incubators, technopoles, technology parks and centres of excellence in the field of software development and ICT legislative studies;

(f) Focus on the education sector to ensure that it is capable of transferring and disseminating ICT skills. In addition, curricula must be reviewed to include up-to-date ICT courses and teachers must be trained to use new methodology. These changes must be implemented in parallel in schools, universities and vocational training institutions.

3. *Hybrid approach: solving the problem from both ends*

The hybrid approach establishes a balance between the bottom-up and top-down approaches by delivering an attainable framework for solving the short- and long-term problems that are associated with employment creation and poverty alleviation. The main objective of this approach is to mitigate the risks associated with governmental or non-governmental organizations working in isolation, and which are related to patronage and corruption. This approach includes a self-controlling mechanism that questions the

³⁸ ESCWA, *Capacity Building in Selected ICT Applications in ESCWA Member Countries* (in Arabic), (E/ESCWA/ICTD/2003/6).

³⁹ This activity could also include the calculation of the Human Poverty Index-1 and 2, and also the Gini coefficient for measuring income distribution.

underlying apolitical agenda behind many existing initiatives. The main advantage of a hybrid approach is that it has the potential to overcome poverty and unemployment challenges by implementing an integrated solution aimed at solving problems from both ends.

E. INDICATORS OF ACHIEVEMENT

One set of data must be cross-checked with another, regardless of whether quantitative or qualitative methods of evaluation have been used to monitor the progress of work or to assess results. With this in mind, one of the most important tasks when designing an evaluation method is defining the most suitable indicators of achievement. A number of performance indicators that can be used to judge achievement and to supplement the two targets set for eradicating poverty in the MDGs are outlined below:

(a) Number of pilot projects launched, number of successes, number of failures and number of pilot projects with sustained operations;

(b) Number of new jobs created and level of increased income by gender and age;

(c) Threshold values for poverty and unemployment, for example HDI, HPI, Gini coefficient, national poverty line and unemployment rate;

(d) At the macro level, the percentage increase or decrease of real gross domestic product is a possible indicator.

It is important to ensure that indicators are carefully designed and that they reflect what they are intended to measure. In addition, ESCWA member countries are urged to agree on a common subset of indicators that could be used to provide comparative measurements from one country to another, as well as to assess impact and progress at the regional level. They must also agree on a means of verifying these indicators.

V. RECOMMENDED POLICIES AND PRIORITY PROJECTS FOR THE REGION

This chapter outlines a proposal for a strategic plan that can be conceived of as a set of guidelines to inspire and stimulate national and regional actions aimed at harnessing ICTs for employment creation and poverty alleviation in the ESCWA region. The plan comprises a number of pro-poor ICTs for development policies and also recommends priority projects for the region.

With this in mind, ESCWA, by means of advisory services and technical support, can enable Governments in Western Asia to realize their pro-poor plans. In addition, the Commission contributes to building the capabilities of policymakers, collecting up-to-date poverty and unemployment measurements, and providing significant upstream policy advice to Governments. It is worth noting in particular that ESCWA can assume the role of active mediator among stakeholders in terms of promoting and advancing various projects. It is also able to act as a catalyst for the implementation process.

A. PRO-POOR ICTs FOR DEVELOPMENT POLICIES

In response to the increase in problems resulting from poverty and unemployment, Governments in ESCWA member countries must implement pro-poor policies that ensure the appropriate uses of ICTs for increasing the livelihood benefits of impoverished communities and that empower them with access to information. By rendering information and knowledge available to wider segments of the population, ICTs can be harnessed to promote democratic values and combat extremism. Moreover, Governments must pursue employment creation policies that are geared towards improved rural-urban linkages and further development of SMEs. The success of these policies depends on Government endorsement, social mobilization, particularly at the grass-roots level, and the support of the private sector in providing technical expertise and business sustainability.

A list of recommended pro-poor ICT policies for Western Asia is reviewed below. These pro-poor policies, with the exception of the first, which focuses on developing poverty and unemployment monitoring systems, are aimed at alleviating poverty mainly by creating employment. Employment creation, through the application of ICTs, can be achieved either by developing the skills that will help the poor to get a job or by improving the productivity and competitiveness of SMEs so that they can hire more employees at a later stage.

1. *Monitoring poverty and unemployment*

This policy provides a framework for ESCWA member countries to develop poverty and unemployment monitoring systems and also to gauge progress towards MDGs. International poverty measurements, including that which uses the \$1-a-day minimum income requirement to distinguish the poor from the non-poor, do not replace the need for developing regional and national poverty income indicators. The ESCWA region suffers from a lack of relevant and up-to-date poverty and unemployment measurements. A policy on monitoring poverty and unemployment must therefore achieve the following:

- (a) Foster the capacity building of decision makers in poverty and unemployment monitoring systems;
- (b) Promote the development of national poverty lines or the calculation of HDI, HPI and Gini coefficient (see box 6);
- (c) Encourage the computation of the unemployment rate and the conducting of statistical surveys by industry, particularly the ICT industry;
- (d) Pave the way for a framework for poverty and unemployment monitoring and analysis systems.

Box 6. Poverty line in Thailand

A poverty income level has been established in Thailand since the early 1970s, using the Nutritional Adequacy Approach. This approach identifies the nutritional requirements of the local population by age and sex, and identifies what is known as the food poverty line, which describes the minimum income required to obtain nutritionally adequate food items. Additional calculations define the minimum income required to obtain non-food items. These two poverty lines are then added together to ascertain the total poverty line, or simply the poverty line for Thailand.

Source: National Electronics and Computer Technology Centre (NECTEC), *IT for Poverty Reduction: Sample cases from Thailand*, second edition (Bangkok, NECTEC, December 2003).

2. Increasing accessibility to ICTs

ICT enterprises and civil society actors are the main channels for increasing access to ICTs, and they must also encourage the use and transfer of ICT-related skills to enhance productivity and competitiveness. As such, a policy to increase accessibility to ICTs must be formulated, which facilitates the following:

(a) The spread of affordable access to telecommunications, including access to the Internet, particularly in impoverished rural and remote areas;

(b) The implementation of ICT community centres that provide telecommunication links and ICT services for personal and community capacity-building while serving as central points for entrepreneurial skill development, lifelong learning, employment creation and community building. The suggested location for these centres is in municipalities and public schools, which highlights the necessity of instituting policies that enable the establishment of public access areas to host such endeavours;

(c) The dissemination of PCs in every home, particularly in disadvantaged communities and education institutions. Policies incorporating this goal must endeavour to harness private investment, and encourage entrepreneurship and the participation of SMEs;

(d) The creation of a digital public library or hybrid libraries that offer lifelong learning, and which also preserve national and communal knowledge. This endeavour is equally expected to help to combat illiteracy, thereby improving employment opportunities;

(e) The development of DAC to increase the use and assimilation of ICTs. This requires the emergence of an industry that produces Arabic content and applications that are suited to local needs, and which preserve the rich and varied cultural heritage in the region;

(f) The use of applications based on open source software to develop affordable solutions that meet the needs of the ESCWA region and, more specifically, of SMEs, education and health institutions, and of the public sector.

3. Developing the ICT industry

It is possible to enable the development of a techno-economy, as has been witnessed in India, by building a sustainable ICT sector and integrating it within national and regional strategies, and in doing so, boosting the economy of some countries in Western Asia (see box 7). In essence, effective, efficient and productive growth in the ICT industry can only be accomplished with the help of the private sector. In addition, Governments can provide assistance by championing ICT-based projects and paving the way for new ICT initiatives. The challenge in this regard is to replicate and scale up successful initiatives through public-private partnerships. The policy on developing the ICT industry must achieve the following:

(a) Foster the establishment of strategic partnership agreements and facilitate the setting up of offshore companies that recruit local manpower;

(b) Encourage the development of a software industry and profit from windows of opportunity in the export market;

(c) Invest in building ICT skills through education, namely, at the primary, vocational and university levels. This aspect must also support the development of computer courses and classes for housewives, the unemployed and people with special needs;

(d) Create and disseminate new institutional forms, for example, technology incubators and parks.

Box 7. Performance of the ICT sector in India

According to the estimates of the National Association of Software and Service Companies, the total revenues of India's software and services industry were projected at approximately \$12 billion during the period 2002-2003, of which \$9.5 billion were generated from exports. The software sector in India is second only to that of the United States of America, and global corporations continue to increase the outsourcing of their software requirements to Indian companies, despite a slowdown in overall information technology spending.

Source: National Association of Software and Service Companies, "Workshop on ICT for Poverty Alleviation in India: Financing Models and Scaling up Opportunities". Available at: http://www.nasscom.org/artdisplay.asp?Art_id=2346.

4. Reviewing ICT public expenditure for development

Despite the fact that it is difficult to determine exact expenditures regarding the use and development of an ICT environment in ESCWA member countries, Governments must spend more on contracting ICT development projects and on maintaining and upgrading ICT infrastructures. The latter concern, which is one of the pillars of the new knowledge-based economy, could eventually increase existing foreign direct investments and capture new ones. Moreover, development policies geared towards harnessing ICTs for employment creation and poverty alleviation, particularly in impoverished rural areas, are necessary to eliminate the hurdles to equitable ICT access. A policy on ICT public expenditure for development must do the following:

(a) Encourage ICT public expenditure for improved equitable and affordable access to ICTs;

(b) Implement more Government-to-citizen applications with the aim of serving impoverished and marginalized communities;

(c) Support the implementation of affordable, secure and reliable ICT connectivity, thereby compensating for the lack of ICT infrastructure in rural areas;

(d) Subsidize or remove telecommunication and utility costs, for example Internet membership, telephone or electricity costs, related to the operations of initiatives targeting impoverished communities;

(e) Support the development of relevant content that serves poor communities and helps unemployed citizens.

5. Developing and sustaining SMEs

SMEs are an important means of creating employment and renewing economic growth; and such enterprises have contributed to boosting entrepreneurship in impoverished rural areas and providing sustained livelihoods to impoverished communities in many countries. However, much remains to be done, including encouraging the use of ICTs in SMEs, particularly those that are based on traditional modes of production. A policy on developing and sustaining SMEs must achieve the following:

(a) Foster the development and dissemination of affordable ICT-based applications to enable SMEs to reduce operational and administrative costs, and increase productivity and access new distribution channels. A typical application would be the deployment of e-commerce solutions coupled with an appropriate marketing campaign;

(b) Abolish restrictive national policies and regulations that hinder the development of SMEs and that facilitate the dissemination of ICTs as a tool for increasing productivity, capacity and competitiveness;⁴⁰

(c) Provide an enabling environment for securing financing programmes and microfinance schemes that support the development of SMEs; this will entail the development of new specialized financial institutions and intermediaries that have appropriate structures for servicing SMEs.

6. Revitalizing the role of women

It is important to recognize and enhance the functions and activities of women inside the family with regard to alleviating poverty, combating illiteracy and nurturing the values that expand the boundaries of the human will. Moreover, while some progress has been made in solving gender inequality in the ESCWA region over the past years, the gender gap remains a challenge throughout the Arab world. Gender inequality contributes to poverty, slows economic growth and reduces human well-being. A policy on revitalizing the role of women must do the following:

(a) Advocate the development and delivery of more training courses for women, particularly housewives and those with a low level of education, to build the necessary skills for generating and presenting digital content that addresses their practical and strategic needs;

(b) Encourage the implementation of ICT community centres for women in impoverished urban and rural areas. These have the potential of empowering women to play a proactive role in sustainable development and poverty alleviation in ESCWA member countries and are envisaged as a means of increasing the effectiveness of women and their opportunities, as well as enhancing their employability. Typical centres will provide access to ICTs and basic office tools for self-employed women and host a day-care centre or kindergarten facility.

7. Building the e-worker

E-work is a new method of working that is shaping the future of work in the knowledge economy in that it uses ICTs to carry out work independent of location. E-work places an economic value on remote working and necessitates a system to remunerate such work. One major aspect of an e-work related policy could be to place an economic value on women's work in the home. With this in mind, a policy on building the e-worker must do the following:

- (a) Support a new business model to provide an effective and efficient e-working environment;
- (b) Promote the availability of a reliable telecommunications infrastructure with affordable rates;
- (c) Review tax and social security issues that hinder the implementation of e-working.

B. REGIONAL PRIORITY PROJECTS

This section recommends a number of regional priority projects aimed at harnessing ICTs for employment creation and poverty alleviation in Western Asia. The majority of these projects tackle the issue of alleviating poverty from two angles. The first builds the capabilities of the poor and increases their access to ICTs, thereby helping them, through the use of ICTs, to develop the skills that may enable them to obtain a job or, in the case of those who are already employed, increase their income. The second is devoted to the development of entrepreneurial activities and SMEs and is aimed at increasing employment in such enterprises by improving their productivity and competitiveness.

⁴⁰ For example, abolish or reduce customs duty on imports of ICT equipment.

The projects, grouped by programme, have been selected on the basis that they will have a significant impact on the lives of the poor and the unemployed, and will satisfy, to the greatest extent possible, the needs of the proposed pro-poor policies described above. The use of a programme framework enables better structuring of the projects and, at a later stage, may facilitate project implementation through the assignment of a programme coordinator to follow up on activities and create synergies among established projects.

The proposed list of regional priority projects takes into consideration collaborative efforts at the regional and international levels. As such, a number of these projects have been derived from the plan of action for building the information society in Western Asia,⁴¹ which was produced by ESCWA, and which includes projects of stakeholders that are active in the region. The majority of these projects are not the result of new concepts and some, for example, ICT community centres, have been implemented in a number of ESCWA member countries. However, these projects are recommended because they meet the requirements of the region and their concepts have already been tested.

A summary of projects is illustrated in table 7, which are grouped by programme and mapped to the recommended set of pro-poor policies. This mapping illustrates the relationship between a project and the respective relevant policy in a concise manner, thereby laying down an integral strategic plan of action aimed at harnessing ICTs for employment creation and poverty alleviation in Western Asia. While each project is linked to one major policy, it could also serve others. On the far right hand side of the table, projects are assigned to one of three groups based on their context in alleviating poverty. The first group is dedicated to projects that build, through the use of ICTs, the capabilities of the poor to improve the chances for getting a job or increasing their income. The second group is devoted to projects that increase entrepreneurial activities and enhance the productivity or competitiveness of SMEs, also through the use of ICTs, so that these enterprises provide more job opportunities. The third group encompasses projects that indirectly support job creation and employment alleviation endeavours and that are more general in nature.

TABLE 7. SUMMARY OF PRIORITY PROJECTS

Programme/Project	Policies							Project grouping		
	Monitoring poverty and unemployment	Increasing accessibility to ICTs	Developing the ICT industry	Reviewing ICT public expenditure for development	Developing and sustaining SMEs	Revitalizing the role of women	Building the e-worker	1a	1b	1c
Programme 1. Poverty and unemployment ICT monitoring systems										
Labour market information systems										
Regional website on ICT for poverty alleviation										
Poverty and unemployment management information system										
Geographic information system for poverty										
Programme 2. Increase access for impoverished/marginalized communities										
Empowerment through community access										
Mobile ICT centres										
Empowerment of the visually disabled through ICTs										
Digital Arabic libraries										
Programme 3. ICT sector for employment creation										
ICT incubation facilities										
Software industry to support entrepreneurial activities										

⁴¹ ESCWA, *Regional Plan of Action for Building the Information Society*, (E/ESCWA/ICTD/2004/4).

TABLE 7 (continued)

Programme/Project	Policies							Project grouping		
	Monitoring poverty and unemployment	Increasing accessibility to ICTs	Developing the ICT industry	Reviewing ICT public expenditure for development	Developing and sustaining SMEs	Revitalizing the role of women	Building the e-worker	a/	b/	c/
Programme 4. Increase public and private expenditures										
National fund for poverty alleviation										
Subsidies on selected ICT services targeting impoverished communities										
Programme 5. Support entrepreneurial and SME development										
Lifelong learning for employees of SMEs										
E-commerce for supporting entrepreneurial activities and SMEs										
E-government for SMEs										
Market information systems for agriculture and fishing businesses										
Programme 6. Women empowerment in impoverished communities										
Women empowerment through ICTs										
Promoting the rights of women and children through ICTs										
Programme 7. E-work for urban and rural areas										
Guidelines for e-workers										
Promoting e-workers										

Notes:

a/ Projects aimed at empowering and developing job-related skills;

b/ Projects aimed at increasing entrepreneurial activities and improving the productivity and competitiveness of SMEs;

c/ Projects that indirectly support job creation and employment alleviation endeavours and that are more general in nature.

Most projects, with appropriate modifications, can be applied to impoverished rural or urban areas. This segregation is important owing to differences in the availability of ICT infrastructure and the existence of diverse approaches in alleviating poverty and creating employment in these areas. Another important aspect that is worth noting is the necessity of establishing rural-urban linkages to advance development in the fields of commerce, agriculture and tourism, in addition to supporting SMEs.

A conceptual overview of priority projects for employment creation and poverty alleviation in Western Asia is presented below. The order in which these projects are presented does not reflect any attempt to prioritize them or the programmes to which they belong.

Programme 1. Poverty and unemployment ICT monitoring systems

This programme focuses on monitoring and information systems that provide data on current poverty and unemployment rates in the region, track progress of work, and assist policymakers in formulating better policies, and designing and implementing more effective projects. The following projects fall within the framework of this programme:

(a) *Labour market information systems*: This project offers information on employment opportunities and career planning. Its objective is to reduce unemployment in impoverished areas through the implementation of a system that provides access to temporary and permanent jobs, and which highlights in particular, employment prospects for occupations that permit entry into the labour market with little or no post-secondary education, and also little or no previous work experience. Such a system helps people to find jobs, retrieve career-related information, participate in career planning and access links to other job search sites;

(b) *Regional website on ICT for poverty alleviation*: This project contributes to the creation of a dynamic website that uses the results and recommendations of a number of studies and reports as a benchmark to monitor progress and to empower policymakers with regard to alleviating poverty. The website must be periodically updated with the latest major findings on ICTs and poverty alleviation. ESCWA is developing such a website/database, which will cover the entire region;

(c) *Poverty and unemployment management information system*: This project, most probably executed by national statistical office or by regional and local organization, is expected to develop and maintain information systems capable of sending information to the district level. Such systems could eventually evolve into decision support systems. For example, this project enables the definition of national poverty lines, the calculation of HDI, HPI and the Gini coefficient, and the computation of the unemployment rate by gender, age and industry;

(d) *Geographic information system for poverty*: This project is aimed at implementing a geographic information system application to promote the use of poverty maps in policymaking and in monitoring the progress of work, particularly in rural areas and remote communities. A holistic approach in planning and implementation is essential for presenting a spatial perspective of poverty indicators at the regional, national and subnational levels.

Programme 2. Increase access for impoverished and marginalized communities

This programme focuses on the different applications of ICT at the community level, with the aim of empowering the poor and serving the marginalized by acting as central point for personal and entrepreneurial skill development, employment creation, lifelong learning and community development. The following projects fall within the framework of this programme:

(a) *Empowerment through ICT community access*: This project seeks to build ICT community centres in impoverished communities and to create linkages between rural and urban areas in ESCWA member countries. These centres provide access to the Internet and other services, including computer training, distance learning, e-commerce, e-government and e-health. These services are expected to have a positive impact on the lives of the poor and to provide job opportunities for the unemployed. In addition, the implementation of this project in various areas will eventually build a network of ICT community centres covering a wide area and a broad section of the population;

(b) *Mobile ICT centres*: This project provides mobile ICT centres by equipping a minibus with the necessary technical and human resources to harness ICTs for helping impoverished communities, particularly in remote areas. The mobile ICT centres complement the project on establishing ICT community centres by covering a large number of communities with a low population density where it is not financially justifiable to establish a permanent centre;

(c) *Empowerment of the visually disabled through ICTs*: The project primarily supports the blind or visually disabled and enables them to acquire training and develop vocational skills that enable them to become productive members of society. Through Braille display terminals, speech synthesizers and ICT tools and applications, the project aims to supplement the services delivered in community centres and educational institutions. The project also seeks to ensure access to education through ICTs in partnership with schools for the blind, universities and NGOs;

(d) *Digital Arabic libraries*: This project focuses on the development of digital Arabic libraries in both urban and rural areas, with the aim of ensuring free access to digital books and interactive study tools. The project extends and augments existing physical libraries, also known as hybrid libraries, as well as creating new virtual libraries. The project is aimed at developing a culture for seeking information among citizens and providing them with lifelong learning services.

Programme 3. ICT sector for employment creation

The existence of a vibrant ICT sector contributes to socio-economic development in a country. With this in mind, this programme promotes investment in labour-absorbing activities and the establishment of

mechanisms that encourage research aimed at increasing employment in the ICT sector, in addition to retaining skilled workers in the labour market. The objective of this programme is to retain ICT jobs and to increase employment in the ICT sector. The following projects fall within the framework of this programme:

(a) *ICT incubation facilities*: This project is aimed at providing the necessary financial and technical assistance for ICT-related business incubation. By promoting innovation and the creation of new businesses, and attracting private investment to help the growth of ICT-enabled businesses in all sectors of the economy, this project provides new job opportunities in the labour market. As such, the project aims to set up incubators facilities in selected ESCWA member countries and to spark incubation activities in the region;

(b) *Software industry to support entrepreneurial activities*: This project endorses the development of a local software industry to serve national niche markets for software applications with the goal of supporting entrepreneurial activities and multiplying the number of SMEs in this field. The project aims to boost skills in the labour force to enable the formation of a local software industry targeting small- and medium-sized projects, thereby avoiding direct competition from large national or multinational firms.

Programme 4. Increase public and private expenditures

Government support is vital in ensuring equitable socio-economic development among all segments of the population. In general, the private sector tends to cherry-pick profitable market segments, often neglecting the rest. This programme urges Governments to devise, in partnership with the private sector, innovative systems that provide incentives to encourage projects aimed at economic and social development. The following projects fall within the framework of this programme:

(a) *National fund for poverty alleviation*: This project includes capacity building of Government representatives and initiating pilot schemes in selected countries to set up national funds, with an emphasis on employment creation and poverty alleviation. This project focuses on increasing public expenditures to ensure wider and more equitable access to ICTs, and to support local ICT firms through the deployment of more projects. Typical contributors to a national fund could be, for example, telecommunications companies;

(b) *Subsidies on selected ICT services targeting impoverished communities*: This project, by means of capacity-building, is aimed at persuading the public and private sectors to identify a set of initiatives that target impoverished communities and then to provide subsidies on selected services to enable the sustainable operation of these initiatives, at least in the short term, as well as their expansion in other communities within that country.

Programme 5. Support entrepreneurial and SME development

This programme focuses on using ICTs in the development of SME-job related skills or qualifications, with the goal of addressing personal development, social cohesion and pro-poor economic growth. Coupled with microfinancing schemes, this programme also encourages entrepreneurial activities, which are eventually expected to contribute to the creation of jobs. The following projects fall within the framework of this programme:

(a) *Lifelong learning for employees of SMEs*: This project focuses on improving employment and career opportunities by continuing the professional education of employees of SMEs, and is aimed at increasing the productivity and competitiveness of SMEs;

(b) *E-commerce for supporting entrepreneurial activities and SMEs*: E-commerce applications, particularly business-to-consumer and consumer-to-consumer, could increase revenues for SMEs by allowing them to reach new markets and increase business from existing customers. This project entails investment in the marketing of e-commerce sites on a continuous basis, the targeting of niche markets to promote local produce, the development of partnerships along the value chain, and the reliable delivery and incentives to retain customers;

(c) *E-government for SMEs*: This project is aimed at developing government-to-business applications that enable SMEs to reduce the cost of conducting transactions with the Government. The project is

expected to increase transparency, reduce corruption, and ensure greater convenience and potential for revenue growth and/or cost reductions. Typical applications include an online guide related to business, renewal of licences or professional permits, creation and modification of commercial registers, and the provision of information on new regulations;

(d) *Market information systems for agriculture and fishing businesses*: This project is aimed at launching pilot schemes in selected impoverished communities in ESCWA member countries, targeting farmers and fishermen in particular, although it could be extended to cover other craftsmen and industries. The project, through the use of mobile phones or the Internet, is expected to enable farmers or fishermen to retrieve daily updated data related to the price of their produce in the major marketplaces of neighbouring cities.

Programme 6. Women empowerment in impoverished communities

This programme aims to improve the lives of women in rural and urban areas in Western Asia. It enables women to access, through ICTs, commercial, health and education related information. The programme strives to empower women, both socially and economically, by helping to combat illiteracy, reduce poverty, improve family health and hygiene, attain gender equality and ensure the sustainable development of a woman's financial support for her family. The following projects fall within the framework of this programme:

(a) *Women empowerment through ICTs*: This project is aimed at improving the status of women in the region by establishing ICT-enabled national centres, which combat classical as well as ICT illiteracy, bridge the education gap, provide access to women-relevant information, and increase the employability, economic welfare and social integration of women;

(b) *Promoting the rights of women and children through ICTs*: This project endeavours to empower women so that they will be able to address and resolve issues related to family law, for example, child support payments, marriage and divorce, labour, adoption and custody. The project will produce user-friendly, readily understandable legal information in textual and video format in the local language. The information will be delivered on the Internet (where applicable), compact discs and through telephone hotlines.

Programme 7. E-work for urban and rural areas

This programme is aimed at encouraging the development of e-work and the e-worker. During the initial phase, it will target urban and rural areas with a proper ICT infrastructure. The programme offers an innovative approach to tackling unemployment in the region by allowing citizens to carry out work independent of location at the national and regional levels. The following projects fall within the framework of this programme:

(a) *Guidelines for e-workers*: This project will enable the development of a set of guidelines pertaining to successful e-working models for the ESCWA region. The guidelines will elaborate new business models, provide best practices, propose principles for enabling effective and efficient e-working environments, identify suitable "e-workable" jobs, and also recommend changes related to taxes and social security. The guidelines will also tackle technical issues for supporting the development of the e-worker, for example, infrastructure, remote access solutions and network security;

(b) *Promoting e-workers*: This project will mainly target urban areas and will strive to create new job opportunities at the national and regional levels. Typical examples of e-work include ICT specialists, sales jobs and management consultants. This project is aimed at launching a prototype working model in selected ESCWA member countries for testing purposes, with the goal of building capabilities and fine-tuning results for future dissemination in the region.

VI. CONCLUSION

This study investigates and analyses how ICTs, as innovative tools, can be used to tackle the issue of poverty alleviation from two perspectives. The first focuses on empowering and building the capabilities of the poor through the use of ICTs, thereby improving chances for increasing their income. The second is concerned with harnessing ICTs to develop entrepreneurial activities and SMEs, thereby improving productivity, competitiveness and growth, and therefore job creation capabilities in these areas.

In order to fulfil these objectives, this study proposes an implementation framework based on HDI grouping. This framework includes four main country clusters, which categorize member countries in terms of how urgently they require assistance in the area of poverty alleviation and employment creation. The study also suggests a number of implementation modalities that could contribute to raising funds and instigating collaboration and partnership among various stakeholders to alleviate poverty and create employment. With regard to implementation, this study indicates that the hybrid approach is most preferable, based on the fact that such an approach establishes a balance between the bottom-up and top-down approaches and is aimed at solving short- and long-term problems associated with employment creation and poverty alleviation.

A number of pro-poor policies are recommended, and various projects aimed at harnessing ICTs for employment creation and poverty alleviation in Western Asia are outlined. The projects, grouped by programme, were selected on the basis of their significant impact on the lives of the poor and the unemployed, and because they fulfil, to the greatest extent possible, the needs of the recommended pro-poor policies.

Finally, it is worth reiterating that ICT is a means of enabling people to escape from poverty, empowering impoverished communities, and providing access to vital resources and information. By creating new jobs, reducing unemployment, establishing new distribution channels and providing new competitive advantages, ICT applications geared towards employment creation and poverty alleviation will eventually contribute to reducing the gap between the rich and poor in the ESCWA region. In order to achieve this, ICT projects must be tailored to the needs of the country they serve, and must be designed to complement each other in order to induce pro-poor growth.

Annex

SELECTED ICT INITIATIVES FOR EMPLOYMENT CREATION AND POVERTY ALLEVIATION

The annex table lists the 48 initiatives that were identified in the ESCWA survey on ICT initiatives for poverty reduction and employment creation, and which are analysed in chapter III above.⁴²

ANNEX TABLE. LISTING OF IDENTIFIED ICT INITIATIVES FOR EMPLOYMENT CREATION AND POVERTY ALLEVIATION IN SELECTED ESCWA MEMBER, AS OF NOVEMBER 2004

ESCWA member	Inception year	Project name
Egypt	2002	ICT for Development Programme
	2000	Basic Training Programme
	2000	Professional Training Programme
	2005	ICT Support Centre for Small and Medium Enterprises
	2004	Establishment of Community Access Centres
	2004	Support to existing Community Access Centres
	2004	ICT in the Arab Region for the Blind
	2004	Siwa Technology Access Community Centre
Jordan	2000	Knowledge Station
	1999	Enhancing Technical Training and Employment Opportunities for Women
	2003	MENA Regional Roaming Institute for Women's Leadership and Training of Trainers
	1999	The Human Resource Development Information System
	2001	Cisco Networking Academy Programme
	2003	Improving the Life Conditions of People with Physical Disabilities through the use of ICT Tools and Applications
	2001	Support to Jordan's e-Learning Initiative
	2004	E-village Initiative
	2001	Achieving e-Quality in the IT Sector
	Not available	Canada Fund for Local Initiatives
	Not available	Internet Bus
	2000	Jordan Information Technology Community Centres Initiative
	2002	Al-Karma Centre in Jabal Al-Natheef
Lebanon	2002	Training Centre for Information and Communication Technology
	2004	E-strategy - Phase II
	1999	Capacity Building for Poverty Reduction
	2002	Saradar IT programme - Mobile Computer School
	2002	SmartBus
	2002	Computer Donation
	2001	Eradicating IT Illiteracy
	Not available	Providing IT and Communication Services to Local Communities
	Not available	Distribution of computer equipment
	2000	The Scholarship Fund for Palestinian Women
	Not available	Civic Centres Programme
	Not available	Points d'Accès Aux Inforoutes Pour La Jeunesse (PAJE) Centre

⁴² For more information see the ESCWA website, *Modern Technologies for Employment Creation and Poverty Reduction in the ESCWA Region*. Available at: <http://www.escwa.org.lb/mtecp>.

ANNEX TABLE (continued)

ESCWA member	Inception year	Project name
	2002	PCA Internet Point of Presence (PiPOP)
	Not available	Literacy Programme
	2003	Multipurpose Technology Community Centres
	Not available	Telecentres in Lebanon
	2001	Achieving e-Quality in the IT Sector
	2005	ICT Support Centre for Small and Medium Enterprises
Palestine	2001	IT4Youth
	1999	Across Borders Project
Syrian Arab Republic	2002	Strategic ICT Programme for Socio-economic Development in the Syrian Arab Republic
	Not available	National Programme for IT Dissemination
	2004	Telecentres in the Syrian Arab Republic
	2002	ICT4Dev
	2005	ICT Support Centre for Small and Medium Enterprises
Yemen	2004	Programme to Foster Socio-economic Development in Yemen using ICT (preparatory assistance)
	2005	Establishment of Community Access Centres

Source: ESCWA, "Survey on ICT initiatives for poverty reduction and employment creation" (2004).