



An Approach of ICT Oriented Learning Pedagogies for Development of SAARC economies

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1. Introduction:

Knowledge, not capital, is the key to sustainable development and improvements in human well-being[14]. Indeed, it is not just education *per se* but the *quality* of education that remains paramount if one is to get ahead in this competitive struggle. ICT has turned into the key platform and catalyst of the past few decades having the potential to support the development strategy for developing nations in order to narrow the gaps in productivity and output that separate developed and developing nations. It has become evident from existing knowledge that faster rates of economic growth can be achieved using ICT as the driving factor in the economic policies of worldwide economies. The rapid development of information and communication technologies (ICTs) and the move towards more knowledge-intensive, interdependent and internationalized societies create new challenges and opportunities for the design and delivery of education. ICT is transforming the global economy and creating new networks that cross cultures as well as minimize distances opening up new horizons for progress and exchange of creativity and intercultural dialogue. The emergence of the Internet and rapid diffusion of digital platforms such as the World-Wide-Web, mobile telephony and broadband networks has had and will increasingly have radical effect on the transformation of education and training in all sectors demonstrating how pervasive ICT has become with various implications on economic growth at macro

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and national levels. However, growing digital divide in terms of access, applicability and affordability is actually leading to greater inequalities in development of not only developed and developing nations but among developing nations with spatial heterogeneity with particular reference to SAARC member nations.. Nevertheless the growing digital divide is actually leading to greater inequalities in development giving rise to paradoxical situations where those who have the greatest need of them- disadvantaged groups, rural communities, illiterate populations or even entire countries- do not have access to the tools which would enable them to become full-fledged members of the knowledge society. This is particularly true for the developing nations of South Asia particularly SAARC members which are characterised by huge pool of human capital with sharp differences at disaggregated levels (such as between the rural and urban population, skilled and unskilled workers[1]).

2. Evolution of SAARC:

South Asia benefiting from global integration has attracted global attention because of its rapid GDP growth since 1980, averaging nearly 6 percent per annum. The economic dynamism and innovativeness of its people is catapulting the region into a leadership position as the seismic change in the global economy shifts its centre of gravity from the West to Asia. Yet South Asia is largely agricultural, land-locked, threatened by the spectre of a nuclear holocaust, the rupturing of the social fabric by religious extremism, persistent poverty of the masses amid the affluence of elites and the destabilization of the life support systems of its ecology and is lagging. A range of political constraints and regional conflict has made South Asia one of the least integrated regions of the world. The cost of weak regional cooperation tends to hurt the poor more than the other segment of the population. Several lagging regions in the larger South Asian countries are either located in the border areas (Bangladesh, India and Pakistan) or land locked (Afghanistan and Nepal) and suffer from lack of market integration and regional cooperation which ought to be key elements of a regional strategy for removing the dichotomy between the two faces of South Asia and eliminating poverty over the longer term[7].

The **South Asian Association for Regional Cooperation (SAARC)**, an organization of South Asian nations (Bangladesh, Pakistan, Maldives, Sri Lanka, Bhutan, India, Nepal and Afghanistan), founded in 1985 is dedicated to economic, technological, social, and cultural development emphasizing collective self-reliance and sustainable development of these nations. SAARC operations face enormous challenges due to their divergent social, demographic, economic and political arrangement.

3. Rationale For Strengthening Educational Base Among SAARC Member Nations:

History reveals that SAARC countries underwent colonial dominance which has left deep rooted impact on their socio-economic and educational structure. 'The downward filtration theory' practiced under the British colonialism educated the upper

strata of the society and the common masses being deprived of learning remained illiterate and weak[2]. Nevertheless religion played a major role in the educational system of these countries. By 1950 the Indian subcontinent freed from British domination, brought about change in their governmental and educational systems; this also influenced changes in the social structures of Nepal and Bhutan. The independent and sovereign states of South Asia, confronted with the formidable challenges posed by poverty, unemployment, low levels of production and pressures of huge workforce of uneducated masses with very low standard of living called for deepening of pro-poor orientation of growth process, through enhanced investment in human capital and infrastructure, increasing budgetary allocations and improved delivery of services in the areas of science, technology and higher education. The primary objective of SAARC was to formulate educational principles and policies promoting welfare and mutual assistance in accelerating the economic, social, cultural, technical and scientific development of the member nations and to improve their quality of life.

In an increasingly divided and insecure world where economies are increasingly establishing themselves as 'Knowledge societies', education is recognized as the most essential prerequisite in nation-building, the vehicle through which a nation's shared interpretation of history and its cultural values are reproduced across generations and economic growth at country level. At individual level, given a strong relationship between educational attainment and earnings, greater access to good quality education positively impacts the social formation, entry to employment and human development index advocated throughout the developing world[3]. In measuring development by combining indicators of life expectancy, educational attainment and income into a composite human development index, the HDI, The educational component of the HDI is comprised of adult literacy rates and the combined gross enrolment ratio for primary, secondary and tertiary schooling, weighted to give adult literacy more significance in the statistic. The following table on 2010 data reveals that HDI is low among the SAARC nations with Afghanistan, Nepal and Bangladesh being ranked among top 10 nations with the lowest HDIs.

TABLE 1 HDI RANKINGS OF SAARC NATIONS

Country	HDI(2010)	WORLD RANKING
SRI LANKA	0.658	91
MALDIVES	0.602	107
INDIA	0.519	119
PAKISTAN	0.49	125
BANGLADESH	0.469	129
NEPAL	0.428	138
AFGHANISTAN	0.349	155
BHUTAN	NA*	NA*

Comprising almost 23% of world population but sharing only 2.5% of the world's gross national income, Bangladesh, Pakistan, Afghanistan, Sri Lanka, Bhutan, India, Nepal and Afghanistan still remains backward in terms of provisioning material benefits to more than 1.5 billion inhabitants. Thus socio-economic development of these economies calls for development of educational attainment and several studies support the positive link between Human capital development and GDP growth of south-east developing nations.

The externalities and increasing returns to human capital implies that while returns to financial capital tend to equalize between regions and across countries with relatively low capital-labour ratio, the returns to human capital are much higher where there are more skilled people[12] playing a major role in alleviating poverty, reducing unemployment and promoting social equity. Empirical evidence states that there is a link between human capital and spatial heterogeneity in South Asian economies, more intense among the SAARC nations which have a long history of colonial dominance. Unequal opportunities in access to education and thus knowledge constitute the principal sources of inequity, injustice; inequality and social exclusion and are defeating the advantages of existing supplies of Human Capital. Minimization of educational inequalities enables the poor to receive more benefits of economic growth and that in turn allows addressing the grave challenges of these nations. The high correlation between educational levels and rates of social and economic development evident from past studies bears testimony to the fact that within contemporary conditions of SAARC, besides alleviating poverty, promoting social well-being and reducing income disparity, broadened educational opportunity should be treated as a basic human capital 'investment' necessary to improve the overall quality of life and equitable nation building in the era of globalization where efficiency becomes the most critical factor for economic success.

The trajectory of growth of education in the SAARC economies is not smooth with the literacy rates and enrolment at primary, secondary and tertiary level far below universal level compounded by high levels of dropout, Schooling, openness, adult literacy rate, higher and professional education and training opportunities, government spending and relative contribution of capital accumulation to growth being much lower in these economies and inability of formal education system to meet industry's needs for trained human resources in the age of increasingly rapid skills obsolescence[1]. The Heads of SAARC States at the Ninth Summit (Male,1997) acknowledged illiteracy as one of the major causes impeding the development of the vast human resources of South Asia and a major factor contributing to the region's economic backwardness and social imbalance. The following table reveals that inspite of consorted efforts the SAARC nations though have made a significant progress in

raising their literacy rates are still confronted with large scale illiteracy which adversely impacts human development index of these economies

Table 2: Literacy Rate of SAARC Economies (%)

COUNTRY	1990	1995	2000	2001	2002	2003	2004	2005	2006	2007
NEPAL	52.9	52.9	76.1	76.8	74.1	76.4	60.6	60.2	55.6	68.3
INDIA	51.7	53.7	75.7	74.9	70.3	73.4	72.2	72.2	63.7	45.2
BHUTAN	43.6	41.7	76.1	71	54.8	42.1	42.5	75.7	72.6	50.2
BANGLADESH	54.4	45.6	68.7	64.1	74.9	76.4	63.3	72.2	78	73.7
PAKISTAN	47.9	49.4	50.2	51.4	49.4	64.9	71.4	77.2	74.5	66.8
SRILANKA	56	55.2	42.9	59.8	54.1	57.1	52.5	55.2	56.4	51
AFGHANISTAN	10	9.3	12	12	15.4	24.7	24.7	22.8	18.1	23.2
MALDIVES	44.8	49.8	67.2	62.9	67.2	69.1	69.5	63.7	68.3	58.3

Source: WDI2009

Identifying the constraints of formal and traditional education system to meet the rapidly increasing dynamism of education at all levels (particularly at tertiary level) and the prioritised need for development of inter-related education to encourage regional cooperation and economic competitiveness to derive benefits from the synergy of collective, well-planned and focused initiatives undertaken by Member States, these economies agreed to realize the goal of a common regional educational standard through uniform methods of instruction and teaching aids by devising appropriate strategies for raising the quality of education through exchange of information among universities, academics, experts, policymakers, students and teacher in the region. They aimed at development that increases human freedom in many dimensions the preconditions being a massive increase in human learning, a common wealth of humankind. The South Asian University in India was proposed to this effect in 11th Summit Kathmandu, January'02.

However education in the SAARC countries suffers from the twin problem of lack of access and excellence. With rapid advances in ICT and growth of Internet creating a new revolutionary impact in discovery and learning, education plays a crucial role for people, both young and old, to optimize their opportunities through positive synergistic interaction of information, knowledge and affect in improving productivity escalating the importance of education in social formation, entry to employment, and economic growth and bridging divides. The impact is already significant in all

developed countries, and the great majority of developing countries are despite difficulties and fears, seeking to take part in the emerging global educational community. Given the severe constraint of conventional methods of teaching in increasing this wealth, opportunity to harness the potential of ICT was identified to advance development and fight against illiteracy and poverty with firm resolve and provisioning of education through ICT in developing SAARC nations is projected as the educational pedagogy of the future, liberalizing the education system from social, demographic and cultural bottlenecks, reducing the constraints of time, space and administration, enabling each learner to achieve his/her potential and build an educational workforce empowered to change.

4. Restructuring Educational Pedagogy Using ICT in SAARC Countries:

The revolution in ICT, growth of World Wide Web, and concomitant rise in virtual learning environment has transformed the age old concept of education from traditional method of learning of facts into ability to learn in an autonomous manner: Whereas once it was all about the transformation of raw materials drawing on a stock of cheap labour, in the knowledge economy it is about how information is created, acquired, transmitted and used more effectively by individuals, enterprises, organizations, and communities to promote economic and social development. The tremendous growth in production, distribution and easy availability of information and growth of Internet imparted dynamism to the labor market with larger numbers of workers requiring higher levels of skills and training. Thus accessibility and affordability of education as well as skill are as important as knowledge creation and delivery in achieving sustainable development. Charles Hopkins, in a conference on Education for Sustainable Development stated that it not just refers to formal education, but also non-formal and informal models of education to be incorporated into all levels of education[3]. Thus ‘universalization’ of education can be understood as a systematic process of increasing access, opportunities to higher education and the multiplication and extension of knowledge as a vehicle for cultural development, citizens' education, technical training, all linked to the objectives of equity and social justice proposed by our society[15].

Schooling, openness, strength of institutions, government spending and relative contribution of capital accumulation to growth being much lower for South Asia and formal education system failing to meet industry's needs for trained human resources in the age of increasingly rapid skills obsolescence in many fields, higher education is conceived of as both “front-loaded” (i.e., concentrated study prior to employment) and as lifelong learning (i.e., where an individual returns to higher education at various points to update skills/switch careers)[9]. The short “shelf life” of knowledge interestingly generated a growing demand for lifelong learning in order to update knowledge and skills on a regular basis. ICT in offering the potential for more accessible, flexible and cost-efficient (and even pedagogically superior) higher

education is considered as an intervening strategy to break the conventional business of education, to providing basic educational services and dissemination of information and knowledge that effects personal and community life of individuals and economic sustainability at country level.

ICT backed educational pedagogy (like open and distance learning, elearning and web based learning,etc) is a revolution in providing dynamic and cost-effective access and equality in education in the SAARC countries. While the use of ICT would give the power of connectivity, the need to synchronize the communications technology with local economic and socio-cultural conditions is met by adopting pedagogies that embarks on ICT. It enables us to harness the best talents and knowledge across institutions and regions for course development and delivery. With a massive outreach capacity for delivering quality education at different educational levels – from awareness to highly specialized advanced degree levels, ODL and other forms of ICT based learning are being viewed as central to fashioning education systems that are fit-for-purpose in the 21st century SAARC economies.

To this effect, ‘SAARC Consortium on Open and Distance Learning’ (SACODiL) to strengthen cooperation in the joint development of educational programmes, credit transfers, and promotion of equal opportunities and access to knowledge (Colombo, January’99) has been recommended for establishment and of an enlarged SAARC Scholarship Scheme in ICT and related areas is proposed to be instituted to improve intra-regional connectivity, particularly physical, economic and people-to-people connectivity coupled with smooth flow of goods, services, peoples, technologies, knowledge, capital, culture and ideas in the region [15,16]

The next segment discusses the scale and scope of ICT oriented learning in influencing the economic, social and environmental factors of SAARC countries and attempts to study the scope of ODL as educational pedagogy for achieving sustainable development in these countries.

5. Approaching Sustained Development Of SAARC nations with ICT Oriented Education:

To fulfill the need of the new millennium for quick globalization and rapid development by reaching the masses, and specially in outlying or rural areas of the SAARC nations, there is no alternative to the various educational opportunities created by ICT adoption particularly, open learning and distance education. The global acceptability of ICT adoption in education as a key instrument in building human capital to the needs of knowledge economy has branded education as an entrepreneurial activity, escalating its economic and business significance. It plays a pivotal role in promoting accelerated economic development of the transitioning

SAARC economies in this new environment by facilitating cheaper and easier acquisition of human capital, through increased access to education, training and transfer of technology and resources between the economies [15].

In an increasingly knowledge-based global economy, the positively synergistic interaction of ICT, information, knowledge and the gamut of educational opportunities thus created is especially important to improving productivity escalating the importance of education in social formation, entry to employment, and economic growth of the developing SAARC nations.

5.1 Influencing Economic Development Indicators:

Balanced Economic development refers to an increase in living standards, improvement in self-esteem needs and freedom from oppression as well as a greater choice. It typically involves improvements in a variety of economic indicators such as unemployment rate and fair wage, poverty, world trade and inflow of funds coupled with social formation through various environmental, health and social indicators such as literacy rates, life expectancy, immunization and social equity.

The advent of ICT and its adoption as learning pedagogy will clearly transform the pattern of the demand for labour towards high-skilled workers, particularly high-skilled ICT workers in the labor abundant SAARC economies, with quite profound implications for education and training thereby empowering the workforce with better employability skills. The emergence and widespread diffusion of ICTs have an impact on employment in the service sector through three main channels: expanding final demand or shifting its composition from tangible goods to intangible, information and knowledge intensive services; changing the composition of intermediate demand both in services and manufacturing towards information and knowledge based inputs and processes; and increasing labor productivity in some of the service activities traditionally affected by the so-called cost-disease or productivity bias. This will have significant impact on reducing the unemployment rate which is a grave problem in the SAARC economies.

ICT oriented educational pedagogy is creating paradigm impact on employment generation with growth of a significant industry around it, spanning content authoring, content asset management, and instructional design and learning management. There will be a short-term market for software tools designed to produce content, distribute content, to manage content and to display content and other free and open source applications as well as services and consulting. Apart from this with outsourcing of education gaining prominence, significant opportunities will be created in developing courseware maintaining, monitoring and reviewing performance of the various open and distance learning system. Thus expansion of ICT adoption as educational

pedagogy not only has long term impact on the earning ability of the individuals but also has short term impact in creating new avenues of job and both part time and full time employment opportunity.

Corporate are exploiting the movement of the dissemination of enterprise knowledge from the "structured" class-room domain to the "multi-connected" online domain in order to gain organizational competency and profitable sustainability in this “no bar” global business environment. Networking, orchestration and shared leadership as well as delayering of management coupled with end of jobs for life form the basis for the ongoing paradigm shift. As jobs become more and more insecure and mid-life career changes more frequent and as acquiring specialized degrees is directly related to better jobs, re-engineering e-education owing to its fast deployment and instant availability of training globally, no travel requirements for training; and related cost savings at tertiary level has a great advantage creating economies of scale. Opportunity costs and productivity effects of upgrading the workforce through in-service training should also be taken into account. This development can be characterized to be one of the major megatrends influencing the global labor markets creating demand for flexible and multi-skilled workers. In turn this flexibility, on the part of workers, is viewed by employers as promoting competitiveness, economic growth and guaranteeing employment. The element of flexible timing for learning appeals to adults who are employed and who realize the value of life-long learning in a changing work environment where adult education is gaining emphasis in this part of the world. This new contract differs from a traditional employment contract with regard to skills, work design and rewards. The change in relationship between employee and employer and as a result of a decreased level of commitment may result in a higher employee turnover.

Effect on Trade and investment:

From the perspective of world trade, if SAARC is to generate mutually beneficial economic gains, trade linkages must be established and strengthened among the member countries. The following table (Table1) shows that most of the SAARC economies viz India, Bangladesh, Maldives, and Pakistan are witnessing a progressive increase in trade with the East Asian region, while their share of intra–South Asian trade is stagnating or even declining over time. The exceptions are Nepal and Sri Lanka—interestingly, the two countries have seen their share of trade with SAARC increase—indeed, wholly with India —while their trade share with East Asia has declined (Nepal) or stagnated (Sri Lanka)

TABLE 3: Direction of Trade for South Asian Economies

		2000	2001	2002	2003	2004	2005	2006
INDIA	SAARC	2.4	3.3	2.9	3.4	2.9	2.7	2.8
	ASEAN+3	15.5	21.7	18.1	20	19.8	20.2	24.9

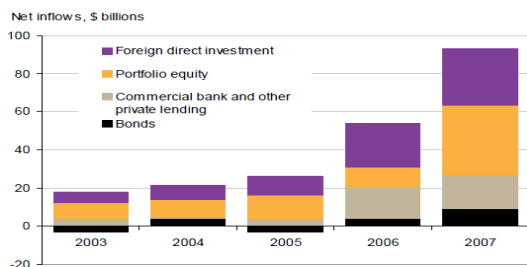
PAKISTAN	SAARC	2.7	2.9	2.2	2.6	3.3	3.5	3.8
	ASEAN+3	18.7	18.3	19.1	19.4	18.3	19.9	26.7
BANGLADESH	SAARC	8.7	10.6	10.4	11.6	10.5	11.5	11
	ASEAN+3	25.4	25.9	27.4	26.2	23	24.6	30.3
NEPAL	SAARC	37.7	44.3	48	52.4	57.4	66.3	71.9
	ASEAN+3	17.3	21.2	18.7	16.4	16.1	17.2	12.5
MALDIVES	SAARC	22.3	23.5	24.3	22.3	19.9	17.3	17.1
	ASEAN+3	42.9	40.2	39.9	43.1	42.2	42.1	46.9
SRI LANKA	SAARC	7.7	8.1	11	12.9	15.2	17.4	19
	ASEAN+3	23.9	22.6	22.2	23.1	21.7	20.7	22.1

Source IMF 2007.

Note ASEAN+3 = Association of Southeast Asian Nations, plus China, Japan, and the Republic of Korea; SAARC = South Asian Association for Regional Cooperation

From the above analysis and given that South Asia's exports of services climbed to \$96 billion in 2007 with almost two-thirds in computer, information, and communications services[7,10], one probable solution in boosting intra-South Asian trade to strengthen the regional trade sustainability and help these nations emerge as a strong trading block can be routed through the trade in e-education. E-twinning of institutions and inter country exchange programs leading to sharing of their infrastructure and technical expertise will help achieve the target. Adoption of ICT in education has broken various cross cultural barriers rendering education as entrepreneurial venture with many public and private investors actively involved in trading 'e-education' services the SAARC economies can find positive prospects in improving trade balances and improving terms of trade.

Figure 1: External Assistance of South Asian Countries during 2003-2007



Source: WDI 2009

Most of the SAARC countries are all heavily dependent on external assistance and foreign aid. Foreign direct investment (FDI) stock levels as a share of gross domestic product (GDP) historically have been exceedingly low in SAARC countries at 0.7

percent of GDP in 2002. The following diagram (figure 1) shows the comparative analysis of the increased financing of the South Asian countries from private sources in the 21st century.

The increase has been drastic between 2006 and 2007, recording increased borrowing from private creditors, 3.5 times increase in net portfolio equity receipts, more than double increase in Net bond issuances from \$4.3 billion in 2006 to \$9.5 billion in 2007, 32 percent increase in remittances reaching \$52 billion in 2007 and significant increase in FDI net inflows reaching \$30 billion in 2007. Net commercial bank and other private borrowing in 2006 and 2007 were \$16 billion and \$18 billion, respectively, compared to the \$4 billion in 2005[13].

ICT helps reach the expanding market of offshore students created by globalization, offering education as a service. The promise of ICT in restructuring educational delivery through ELearning at all levels across the world has attracted more FDI to this newly enterprising service sector through technology transfer. This is expected to reduce the burden of external debt and release the tied up capital of these nations which in turn can be channelized in the infrastructural upgradation of these economies to support the growing needs of ICT in education. Thus capital growth through investment in ICT is expected to create a radical impact on economic growth.

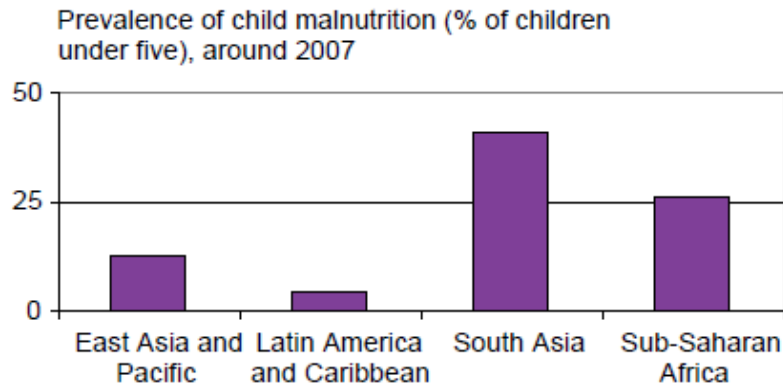
5.2 Influencing Social Development:

Health & environment indicators:

One major concern of SAARC is the environmental crisis and conflicts arising from political turmoil, endemic poverty, and the egotistic projection of military power. The increased global average temperatures will result in major changes in “ecosystem structure and function,” leading to “negative consequences for biodiversity and ecosystem goods and services e.g. water and food supply” reducing crop yields in South Asia by 30% due to climate change associated with global warming by mid-21st –century and This will increase the intensity and extent of already existing food crisis and poverty[7]. The health of the ecosystem is also crucial in determining environmental sustainability. SAARC countries generally afford increasing risk of extinction 20–30 percent of plants and animal species making the ecosystem more fragile and therefore more susceptible to exogenous shocks. In facing these contemporary challenges, SAARC economies would bring a new consciousness into the global-market mechanism within the framework of knowledge and harmony with nature by seeking relationship between humans, nature, knowledge and economic growth.

Aggravating the problem, world development index show that South Asia, particularly SAARC countries generally afford poor health conditions. Maternal mortality was the second highest (500per 100,000 live births) among developing regions in 2005. Over 40 percent of children are underweight, and despite recent improvements, the immunization rate against measles remains one of the lowest of all regions (72 percent in 2007). On account of child health, the following figure (figure2) on the impounding magnitude of child malnutrition reveals this region has the largest number of undernourished children in the world around 2007[8,13].

Figure 2



The risks of HIV/AIDS and other such fatal diseases is also high in these economies. The UNGASS Declaration of Commitment¹ on HIV/AIDS sets the target of reducing HIV infection among 15-24 year-olds by 25 per cent in the most affected countries by 2005 and, globally, by 2010. It calls for vastly expanded access to the information and education, including environmental awareness education and youth-specific HIV/AIDS education necessary to develop the life skills required to reduce risk and vulnerability to HIV infection.

Any effort to look at the reciprocal relationship between the environmental restructuring for achieving environmental sustainability and education calls for vastly expanded access to the information and education, including 'environmental awareness education'. Technology based learning overcomes the constraints of formal education system to supply schooling to those most at risk and the need for huge numbers of teachers and other education-related personnel in supporting large-scale health awareness campaigns and 'youth-specific HIV/AIDS education' necessary to develop the life skills required to reduce risk and vulnerability to these infections. Realizing that the capacity of the education system to supply schooling decreases and

the need for huge numbers of teachers and other education-related personnel, it is essential to expand educational opportunities to a wider range of offerings. Expansion of educational opportunities to adopt ICT based educational pedagogies to impart such awareness programmes with its mass appeal for reaching audiences distant geographically, relatively less capital investment in physical plant (or large rental payments) and relatively low cost of the required technical infrastructure would contribute to the upliftment of the educational opportunities to a larger section of the needy, and subsequently assist in the overall human resources development, promoting environmental quality and sustainable development in these nations.

Given the dependence of societal values and attitudes on education, technology oriented learning with its capability to transform the vast human resource into educated and trained workforce is expected to contribute to SAARC challenges of 21st century for promotion of multi-ethnic democracy, human rights, and a culture of peace in the light of recent conflicts, and geopolitical and social transformation in the SAARC countries which lack to varying degrees, a democratic tradition and are involved in open hostilities[10].

ICT in the offering of ODL has significantly contributed in teacher training with a direct bearing on cultural development as these countries can draw on teachers with superior knowledge from advanced countries for enhancing the quality of education at less governmental expense and convenient pace of the recipients of both formal and non-formal academic courses for meeting educational targets, thus resolving the 'bootstrapping' problem which hinders transitional economies in becoming 'knowledge leaders' and adding to capacity building.[4,6].

Adoption of ICT in education offers democratic educational opportunities as a fundamental road to social inclusion to those citizens (particularly women and unprivileged, ethnic and linguistic minorities and slum dwellers) who are confined away from formal education due to family obligations, social challenges, and financial constraints. It helps close the gap in higher education demand through access to higher levels of education and retraining and development of professionals unable to advance their education, skills and careers while living in rural and remote places, increasing productivity and earning capability, reducing rural-urban disparity, softening rural-urban migration and thereby advance towards higher goals of 'equity and social justice'.

While it is true that if a country improves its gross national income, it can afford better national information infrastructure, it is also the case that more extensive and intensive use of ICTs would help promote national growth and development [13]. Low levels of ICT investment relative to GDP and lack of completed infrastructure and knowledge base to support effective use of ICT were the cause of concern for the SAARC nations. The major ongoing debate in this regard is that economists and educationists consider such investments as diversion of resources from providing access to basic services including health, education, water, and infrastructure including roads,

telecommunication and electricity in economies which are characterized by poor infrastructure and weaker socio-economic conditions. Thus, there is a need for an evaluation of the real potential impact of ICT and adoption of technology based E-learning on the socioeconomic condition to justify the increasing ICT investments and adoption resources from the basic of E-Learning in SAARC nations.

The next section attempts to suggest certain guidelines for structuring a government policy at the national level in order to strengthen the roots of ICT oriented learning and help it percolate at all strata of the economy bridging the digital divide which exists within the geographical domain of the nation.

6. Guidelines For Devising Strategic ICT Oriented Educational Pedagogies For SAARC Nations:

- i. Develop **Specialized and Directly Targeted Incentive-scheme-Based comprehensive total awareness ICT based education programmes /Projects/Campaigns** to target improvement in health and nutrition, protection from diseases, knowledge and practice of family planning, priority to children's education, status of women in family and community and their participation in economic activities outside home, information and knowledge of government services in remote areas to tackle gender disparity, combat adult illiteracy and develop sustainable and functional literacy skills of the ethnic and linguistic minorities, slum dwellers and the ultrapoor that respond to needs of individual fulfilment and social and economic development.
- ii. **Quality Control Process** should get prioritized in the recommendations to the government. Courseware and learning process quality need to be controlled. It has to be done at all steps – generation, production and dissemination- having a set of pedagogy and project experts advisory bodies, which suggests ways to measure quality the government should make arrangement for developing one central faculty development center for supporting faculty in effective instructional design, use of Blackboard and other educational technologies, assessment of the quality of their online courses, help with improving online course quality and help with rapidly changing technologies. We also need more staff in the system distance education area.
- iii. Formulating advanced ODL **Agricultural Entrapreneurship programmes** for agricultural and primary sector workers focusing on income-related skill generation to promote self employment or increase capacity of mid career professionals should be devised for achieving 'agricultural urbanization' and tackling rural-urban migration creating negative externalities of concentration in SAARC economies.

- iv. Framing **ODL Governance framework** for setting standardized measurable benchmarks to track progress and efficiency, harmonizing financing, implementing and monitoring activities and framing special policies for creating 1) Intra-SAARC Public-Private Partnership program with interested institutional, public and private agencies in venturing content, program and business development aspects of ODL for outsourcing to boost invisible trade account helping in reducing dependence on foreign investments 2) Intra-government-donor-global community-enterprise partnership targeting generation of assistance from international community, such as UN, multilateral, and bi-lateral agencies and particularly non-resident community to support projects of expanding ICT access.
- v. Establish a network of '**subsidized national competitive network operators**' to serve underprivileged communities or granting low interest operator loans and microcredit to tele-center owners can help reap ODL benefits in rural areas. A wind-up computer machine with a wi-fi internet connection and a standalone computer network system effectively operational in remote environment, cutting power costs, using cheaper alternative sources like solar, wind, and cable and **digital subscriber line(DSL) infrastructure** by utilizing novels, wireless or mesh technologies whereby routers connect the computes on a grid would be effective in overcoming the infrastructural bottlenecks might reach learners in remote locations with poor electric supply.
- vi. Another policy recommendation should be in the context of **Stakeholder Alignment Process** – All stakeholders which may include the host institution or department, faculty and vendor companies need to be aligned to the project objectives. Engagement mechanisms may include regular communication and invitation to learn more sessions.

Conclusion:

ICT oriented learning is expected to create a large pool of skilled work-force in SAARC nations essential for sustained economic growth. It is critical not only for the development of virtual learning system, but also has widespread ramifications on the entire economy of these countries. SAARC's ability to emerge as a hub for knowledge economy will depend upon the adequate availability of high skilled human resources, which in turn requires changes in the education system as well as infrastructure and faculty requirement.

From the triumph of the capitalist systems across the globe, there is now ample empirical support for the view that the governments of SAARC countries must not simply get out of the way in the spirit of laissez-faire, but must instead play a key role

in pacing and shaping this transition towards knowledge economy. Successful technology adoption in the education system will move in measured steps, at a pace and in a direction that are in harmony with changes in the socio-economic fabric. It is thus anticipated that going forward, a major part of the GDP of these countries would be contributed by the emerging e-education sector through adoption of well coordinated approach of ICT oriented educational pedagogy.

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