



ROLE OF INNOVATIONS AND TECHNOLOGY IN ECONOMIC INTEGRATION IN SOUTH ASIA

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ABSTRACT

Technological Innovation and Information Communication Technologies (ICTs) represent a way for countries to foster economic development. Technology plays an important role to enhance level of education and growth of any country. It is an important component to generate further advances of human development. The combination of technology and economic integration of South Asia will enhance the growth rate of South Asia. It can further lead to advancement of human resources. Regional Economic Integration is a pervasive phenomenon shaping the global environment. A major element behind the growth of economic regionalism is the emergence of trade and investment agreements. South Asia has generated a huge amount of insecurity about its role in developing due to sour relation between India and Pakistan. The European Union was set up with the aim of ending the frequent and bloody wars between neighbours, which culminated in the Second World War. As of 1950, the European Coal and Steel Community begin to unite European countries economically and politically in order to secure lasting peace. The European Union can be a role model for South Asian Integration and bring peace in the region. The main aim of integration among South Asian Countries is to bring peace and stability in South Asia so that the potential can be utilized in a right direction. If war devastated countries can unite why can't the South Asian Countries. History witnessed that they were united and integrated

earlier. Economic benefit of regionalism and globalization can be reaped through increasing the economic activities by public sectors as well as by private sectors within the region. This region faces many challenges of improving quality of life for much of its population. Due to prevailing political instability and conflicting border issues between India and Pakistan, South Asian Economies are facing major challenges in the path of Economic integration. This paper focuses on the role of the technology, which can play a major role for fast track of economic integration in South Asia. This paper highlights major challenges in the way of economic integration as the border issues of India and Pakistan and how the technology can mitigate it, which in turn help in diluting Indo-Pak strained relations and consequently play a major role in Economic Integration in South Asia.

Key words: Technology, growth, regionalism, human development

Introduction

“Technological skill and knowledge based South Asia need to be created.

To grow more.....”

Technological skill and knowledge are the driving force of economic growth and economic development of any country. Countries with a higher and better level of skills adjust more effectively to the opportunities and challenges. and are in better situations to take any favorable decision. South Asia is lacking highly skilled people as compared to the developed world. In fact low- skill based workforce is referred to one of the major factors which could be deterrents for sustaining high economic growth that South Asia has achieved during the last twenty years This is the necessity of South Asian Countries to grow more and sustainable. The knowledge based work force can play crucial role in Economic Development of South Asia.. South Asia is already facing the challenges of skill shortage in all the fields and high- skill labor is migrating to other countries for better opportunities. Innovations, Technology can be a major factor to improve the skill of the labor force. Information communication and technology is a term used for the collection, editing and passing on Communication information in various forms. As an enabler, it can result in improved competitiveness of product and services market of a country. It can positively impact on governance and other sectors of the economy. It can generate employment and can increase the growth rate of these economies. An educational system that encourages creativity and search of technological knowledge can create an educated and skilled labor

force which is an asset for any country. The South Asia is already having a shortage of doctors, engineers, technological, financial and academic researchers.

Communication over a capable network of research laboratories linked together can be able to gain access to technological knowledge. It can increase the productivity of goods and services. An economic policy environment which can encourage research, development investment in innovation. An adequate transport, communications and telecommunications, and infrastructure can be helpful in economic integration in south Asia

- **Statement of Problem**

Technological skill, knowledge communication can lead to improve growth rate in these countries. It is attributable to several important and interrelated factors: their growing capabilities in manufacturing and services, per capita incomes and the associated growth of domestic demand have further boosted their growth performances as well as improving the quality of life. Information communication and technology can play major role in boosting trade and integration in the region, but due to prevailing political instability and conflict border issues of Indo-Pak, the South Asian Economies are facing major challenges in the path of economic integration. Some policy induced constraints, limit the realization of all benefits of economic integration within the region

Literature Review

Segal. A & Anand. V (2007) economic benefits to all the stakeholders involved, leading to a positive outcome for stability and security in the region. **Tumbrello (2007)** Well-designed trade agreements can expand trade opportunities and benefit participants. They can also strengthen political ties between countries in the region. **Akramov. And Karasik. T (2006)**, Another category of networks revolves around the erstwhile traditional Communist elites, who continue to control the levers of power. **Nagesh Kumar (2005)**, there is great interest in Asia to build on the growing functional economic integration and emerging web of FTAs links ASEAN and its summit level dialogue partners, namely China, India, Japan and South Korea and possibly with Australia and New Zealand into an inclusive East Asian community which could eventually grow into a broader Asian economic community. **Coad & Reid (2012)**, With regards to the relationship between R&D and economic growth, we note that the importance placed on “high-tech-high-growth” firms in economic development policy is due to a prevailing assumption that R&D directly leads to growth. **Submarine, Tica, (2006)** comparing developments of the late 18th and 19th centuries, which have some common

properties with development of new technologies today, the author tried to explain that during that period, it was not beneficial to all as the process of ‘technological change’ changed during this time, there are still some lessons to be learned from distant and near history on how to gauge policies for fostering successful technological advances. The changes that occurred are relevant for respective economies, industries, companies and individuals. **Walshok, (1997)**, Because the United States over the last one hundred years has focused the discovery, development, application, and preservation of all forms of knowledge—scientific, humanistic, and social scientist—in a network of privately and publicly funded research universities, these institutions today are being called upon to participate more actively in knowledge-based regional economic development activities.

Objectives and Scope

- To understand the role of technology in enhancing the growth of skilled labor force
- To assess challenges faced by South Asia in economic integration
- To analyze the role technology play in smooth functioning of economic activities within South Asia
- To explain how innovation and information technology play major roles in the growth of South Asian Market.

Research Methodology

The proposed research work will be on the basis of quantitative as well as qualitative study derived from secondary sources. To analyze more comprehensively we incorporate various graphical techniques such as table, graphs and charts. In order to collect the required data, we would make use of official information/websites. Understanding the regional economic integration in general and the particular role of innovations and technology in economic development and economic integration in the region is to be assessed. Information is extracted from various surveys and other secondary resources such as World Development Indicators (WDI) websites of Reserve Bank of India (RBI), United Nations Educational, Scientific and cultural organization (UNESCO), International trade center (ITC) United Asian Development Bank (ADB) and World Bank. This information is analyzed with the help of academic research published in scholarly journals and books. Secondary Data is analysed with few assessed examples.

Hypothesis

- Through innovations and technological skill, knowledge can be enhanced and human capital resource can innovate more products, which will help in expanding markets.
- South Asian regional economic activities can be boosted up through technological advancement and innovations.
- Through expanding markets and technological advancements regional economic integration can be on fast track which will help in diluting Indo-pak problems.

Research Questions

1. What is the role of technology and innovation in the economic integration of South Asian countries?
2. Can technology play a vital role in increasing economic activities among South Asian Countries?
3. Will economic benefits be helpful to reduce border issues problems?
4. Can economic integration be on a faster track through communication among researcher's innovators and investors?
5. What is the role of technology in innovation?
6. What role do innovations, technologies and networks play?
7. How can governments improve the environment for innovation?
8. What is the role of SAARC institutions in funding for research and development?
9. Will the governments of SAARC countries provide support to the private sector for innovations and Research and Developments?
10. Will the Modi's Formula of HIT (Highway, I-ways Trans-ways) in Indo-Nepal relation applicable to South Asian Region.

The Concept of Regional Economic Integration

Economic Integration is a term used to describe how different aspects between economies are integrated. Regional economic integration is a process through which economies within a particular defined geographical region integrates into various facets of the economy which

facilitates cooperation among each other. As the economic integration increases, the barriers of trade diminish. As the trade and investment increase across borders, private actors demand elimination of costly barriers and the provision of greater certainty insecurity of contracts and investments. They petition government to create regional agreements that underpin liberalization of tariffs and non-tariffs barriers and harmonization of regulations. Lloyd defines economic integration in terms of the law of one price, in a global market, common prices prevails everywhere with utility maximizing resource allocation. (Richard, 1998).

The genes of economic integration originated from international economics. The international economics deals with the economic interdependence among nations. Specifically, it deals with international trade theory, international trade policy, balance of payments, foreign exchange markets and open economy macroeconomics. The international economics have enjoyed long, continuous and rich development over two centuries with contributions from some of the world's most distinguished economists, including Adam Smith, David Ricardo, John Stuart Mill, Alfred Marshall, John Maynerd Keyens, and Paul Samuelseon. (Salvatore, 2001). The classical source of gains from trade is that global free trade allows consumers and firms to purchase from the cheapest source of supply, hence ensuring that production is located according to comparative advantage. In contrast, trade barriers discriminate against foreign supply, inducing domestic, import competing producers to expand even though they have higher costs than do imports. International trade generally improves social welfare and stimulates economic growth. Trade enables countries to specialize in line with their comparative advantages and achieve economies of scale that would not be possible without specialization. This improves the allocation of resources and social welfare, improves the quality of goods available to consumers, enhance competition and increases investment in both physical and human capital. In developing countries, trade also fosters economic growth and improves social welfare by helping them in attracting foreign direct investment (FDI) and acquire modern technologies available in developed countries through imports, FDI inflows. (Srinivasan, 1998).

Economic growth and improvements in social welfare in turn, reduce poverty in as much as they raise income and improve the welfare of the poor and increase resources available for social security, primary health care, education, water supply, and other basic services. Some scholars assess that co-operation would ease the barriers posed by the borders between the countries and allow people to connect throughout the regions and beyond with trade and investment linked infrastructure and a free flow of ideas and knowledge (UNDP

report, 2005). Trade is said to be greater in natural trade regions, because the formation of such trade regions is influenced by geographical proximities, which reduces transaction costs and increase information flows (Krugman, 1993). Regional economic integration is argued to beneficial due to better understanding of the region . It helps them to learn negotiations at bilateral unilateral and multilateral level.

Regional economic integration can be categorized in the following forms:

Forms of Regional Economic Integration

Regional economic integration has been emerging in the world in various stages or forms. Normally the first stage is a preferential tariff (trade) arrangements. This is a simple form of regional economic cooperation under which lower tariffs and non-tariff preferential treatments are provided to the commodities coming from member countries compared to non-member countries. Each country is allowed to have its own set of tariffs and non- tariffs against the third country imports. The second stage is free trade area arrangements, which normally means no tariff among the member countries. The third stage is called the customs union, which involves common external tariff in addition to Free Trade Arrangements. The fourth stage is a common market, which adds free mobility of factors of production to custom union arrangements. The fifth stage is an economic union that goes beyond common market by harmonizing economic policies of member countries. Finally, the stage of economic integration, a move towards complete unification of economic policies of member states as a consequence reduction of their independence in economic matters.

The South Asian region is blessed with exceptional diversities of natural and man-made resources. Its climate regimes ranging from sea level to the highest mountains and deep gorges; hottest plains to snow clad mountains; the wettest to driest places; dissected green valley to coral islands. Thousands of rivers with immense hydroelectric potentials, mineral resources such as Coal, iron, natural gas etc. are available in this region. This region is also blessed with an extensive diversity of forest resources, including an extensive variety of animals, herbs and timber. South Asian economy embodies traditional village farming, modern agriculture, handicrafts a wide range of modern and traditional industries and a multitude of support services.

South Asia, emerging from colonialism after the Second World War, was also primarily agrarian in the late 1940s. South Asia has also inherited from the colonial period common institutional and legal infrastructures and a common physical infrastructure of roads, railways

and inland waterways. Mostly, they developed the port areas to export things from south Asia. These got disrupted and disconnected at places, because of prolonged neglect, disuse and even deliberate destruction during periods of conflict. These can be restored without much cost. South Asia has a market consisting of 1.3 billion consumers with rising incomes.(to Check) And lastly, over the last two decades, there has been a convergence of the macroeconomic policies of these countries and also diversification of their economies along similar lines (Dubey 2007, p. 1238).

South Asia, consists of Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan and Sri Lanka, which has a population of about 1.6 billion people (in 2011). South Asia is a home of 40 % of the world's poor, with 29.5% of its population living on less than \$1 a day. While almost a quarter of the world's population lives in the region, South Asia accounts for only 3% of global gross domestic product (GDP), 1.9% of world exports, and 1.7% of world foreign direct investment (FDI) (Kher2012, p, 11).

This region has high manpower and natural resources, which are essential for human life and advancement. It has the man power, hydro power, mineral wealth and natural resources. But these regions are suffering from lack of knowledge and willpower. Political stability is another requirement for economic and industrial recovery. These countries have labor resources in abundance. As per the report of doing business 2013, "South Asian countries score relatively low in terms of their position in the World Bank's Doing Business index with an average rank of 111 among 185 countries in the latest round, which suggests that firms in the region face a difficult business environment. The sub-indices suggest that South Asian firms encounter serious obstacles in getting reliable access to electricity, in paying taxes, and in enforcing contracts" (Global Economic prospects,2013:143) It is being observed that lack of good governance and political instability are the root cause of problems.

Though, South Asia is geographically integrated region, the economic integration is still low despite a number of initiatives taken by the authorities. The idea of regional co-operation in South Asia was first mooted in 1980. The foreign Secretaries of the seven countries met for the first time in Colombo in 1981 to discuss about regional co-operation. Later, South Asian Association for Regional cooperation (SAARC) was established in 1985. The main objective behind this was to promote the welfare of the population of the member countries and improve their quality of life, accelerate economic growth, social progress, cultural development and peace prosperity in the region. Although economic cooperation should be first priority to bring stability in the region, still SAARC has yet to emerge as a viable

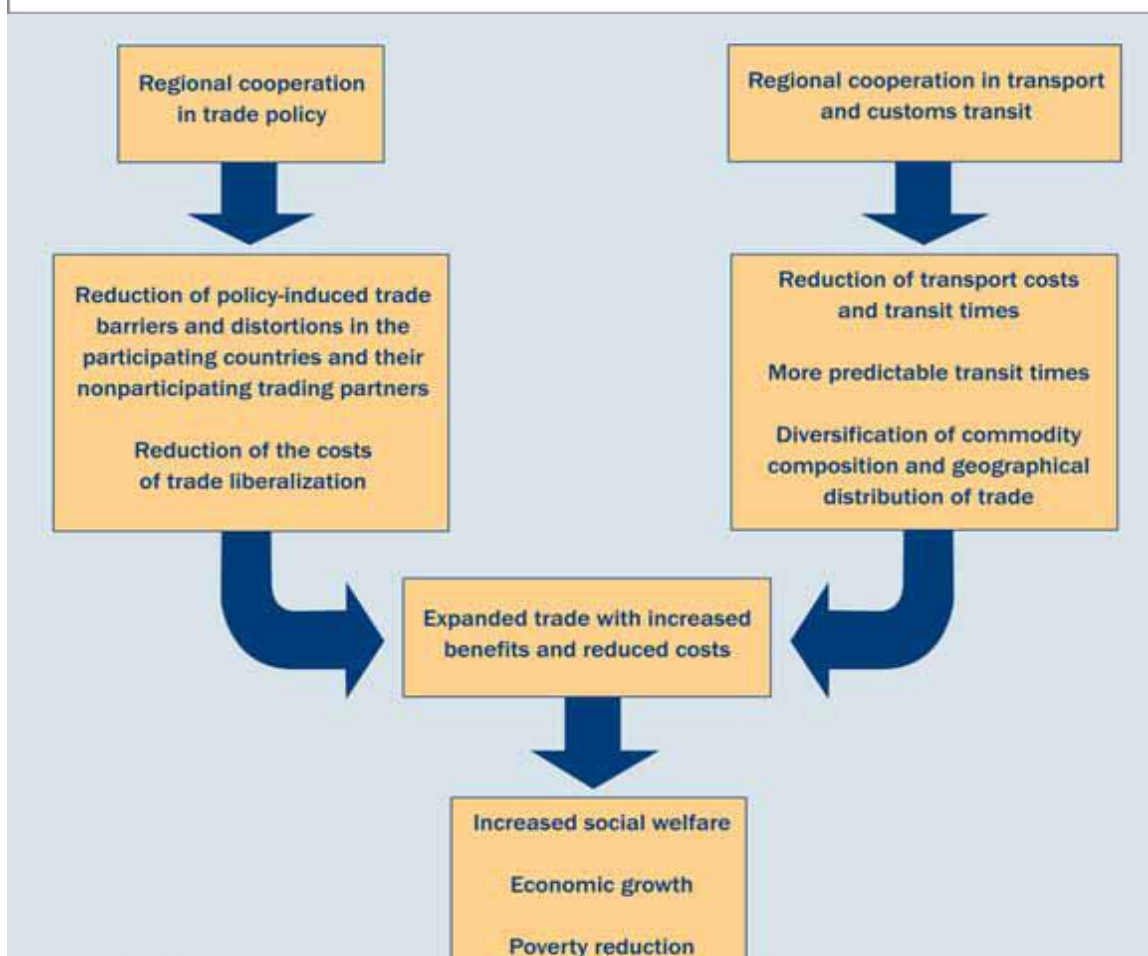
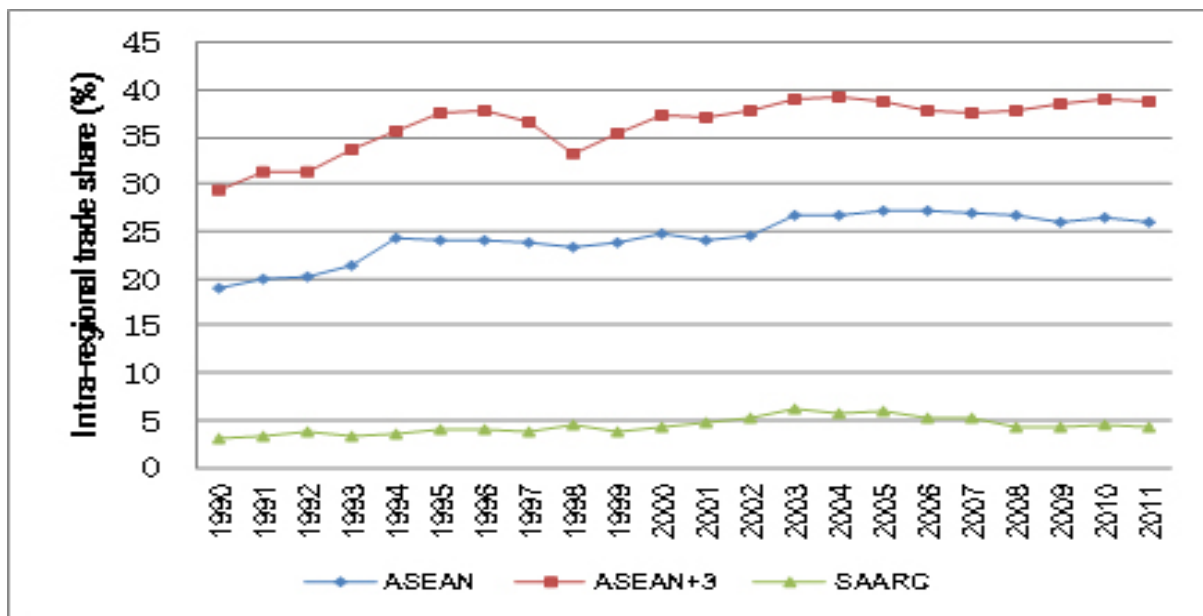
regional organization. Political instability and the souring relationship with Pakistan and India kept the region out from coming together. Till 2002, intra South Asian trade was only five percent of their total trade volume, whereas intra-bloc trade recorded in the EU, fifty five percent, NAFTA, fifty two percent and ASEAN twenty percent. Despite political problems, SAARC Preferential Trading Arrangement (SAPTA) was finalized in 1993 and came into existence in 1995. It was regarded as the first achievement of SAARC. The signing of agreement on South Asian Free Trade Area (SAFTA) in 2004 at Islamabad Summit has been regarded as another big success of the evolution of the SAARC. Achieving SAFTA by 2008, South Asian Custom Union (SACU) by 2015 and South Asian Economic Union (SAEU) in 2020 are the foreseeable prospects. But till Feb, 2009, SAFTA has not achieved fully due to Indo- peak problems. It was totally predicted in that meeting, but till today, even in 2015 SAFTA is not fully implemented within the region what to talk about SACU. Its very important to understand that despite of strong recommendation by researchers progress in this direction is very low.

Impact of 3Ts (Trade, Technology and Telecommunications) on Regional Economic Integration.

1. Trade

Major issues such as trade facilitation, investment, infrastructure, transit, hydroelectricity, natural gas exploitation, tourism, technology, tackling terrorism have been discussed in regional co-operation since the negotiations started. Some common issues like lack of connectivity, geopolitical issues, free movement of people and lack of information have also been discussed. Although some significant progress has been made in South Asia, regional cooperation has experienced several problems. First, the asymmetry between India and the rest of South Asian countries has been a major problem. Unlike other regional groupings, SAARC has not been able to solve this. Secondly, adversarial relationship between India and Pakistan has affected adversely SAARC functioning. Finally, despite all the talk of regional cooperation, South Asian countries lack even minimal understanding, of political and security issues.

Modi Government has taken initiative to bring prosperity within the region. If there will be a political will to push economic integration then the lying idle potential can be trapped and can get rid of poverty from the region.



ADB, (2007) **Increasing Gains from Trade Through Regional Cooperation in Trade Policy, Transport, and Customs Transit, Philippines, ADB p 7**

Some bilateral initiatives are in place between India and Sri Lanka, India and Nepal, India and Bhutan and others are under negotiations like between Pakistan and Sri Lanka and India and Bangladesh. South Asian sub-regional groups like, South Asian Growth Quadrangle was

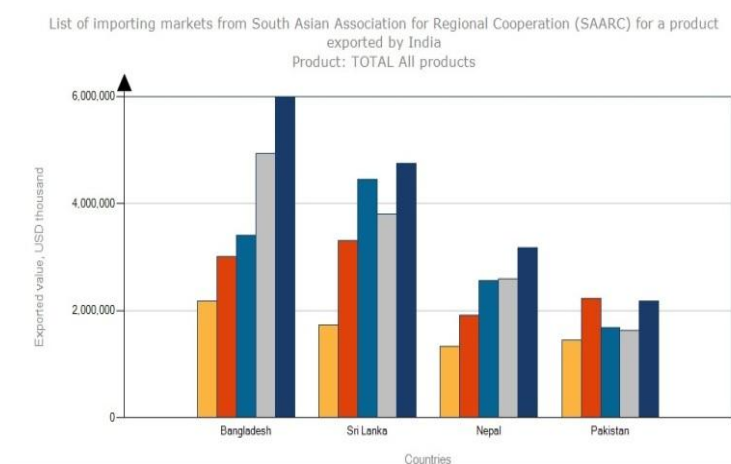
launched in 1997 among four countries (Bangladesh, Bhutan, Nepal and eleven contiguous eastern and north eastern states of India) BBIN quadrangle. Aiming at creating an enabling environment for rapid economic development and encourage co-operative projects in the Ganga- Brahmaputra- Meghna river basin. At the request of BBIN, Asian Development Bank launched an assistance for sub-regional cooperation under the South Asian Sub-Regional Economic Co-operation program in 2001. Countries of the South Asian region are also enjoying the membership of other groups like, Indian Ocean Rim Association for Regional Cooperation (IOR-ARC), Bangladesh- India- Myanmar-Sri Lanka-Thailand Economic Co-operation (BIMST-EC) etc. BIMSTEC has been renamed recently as Bay Of Bengal Economic Community. Some of South Asian countries have also developed close relations with the ASEAN.

It is observed that after liberalization policies in these countries trade

<http://www.asiapathways-adbi.org/2013/08/economic-integration-and-trade-liberalization-in-south-asia/>

Among these countries have been boosted up. It raises up to 5 percent in these two decades as it is shown in Fig. No. 1.1 South Asia's intra-subregional trade, share increased from 2.7% in 1990 to 4.3% in 2011. In between we can see that it has increased to above 5 percent, but due to internal uncertainties the potential is underutilised. Despite having potential this region is far behind in economic integration as compare to other regions.

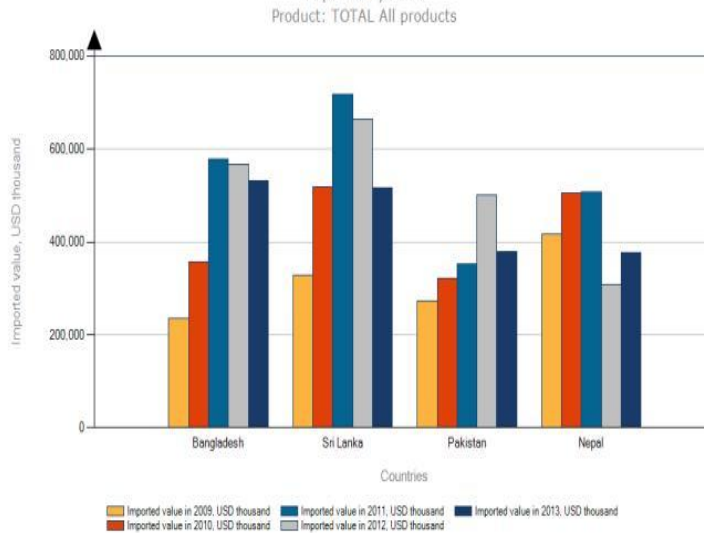
This graph shows that there is potential for the export product with all the SAARC countries and years 2009 to 2013 there is a growing trend with all three countries, but with Pakistan it



shows little growing and falling trend and less products exported to Pakistan only. Biofuels have come to be identified as the renewable liquid fuels, derived from biological raw materials, which can be used as a substitute for petroleum fuels. There is huge

potential of bio-fuel production in South Asia in terms of availability of resources, existing processes and technologies. Vegetable oils can be chemically processed to a less vicious form called esters or what is commonly known as biodiesel. Biodiesel has emerged as one of the

List of supplying markets from South Asian Association for Regional Cooperation (SAARC) for a product imported by India



Sources: ITC calculations based on UN COMTRADE statistics.

more viable options among the bio-fuels. India has taken the biodiesel program on a priority basis. With a view to blend diesel with biodiesel, the Government of India has launched the National Mission on Biodiesel to address socioeconomic and environmental concerns. I think because of many bilateral policies have taken place between Sri Lanka and India. Because of it, we can see an increasing trend in Sri Lanka and Bangladesh. The region has potential to fulfil energy needs within the region if they technologically utilized their capability. India is also importing maximum products from Sri Lanka as we can see in graph 1.3. As Indo-Pak s problem of not implementing the trade policies, trade is very less. But illegal trade is increasing. We can observe from table no. 1.1 and 1.2 that potential within the region for many products is very high. There is a need to utilize fully in all products through innovations and technology. There is need to commercialise these products and private sectors should be welcomed.

Scope of Exports of Various Metal Products Exists from India to the other South Asian Countries

Table 1.1

Metal Products	
Steel tubes, pipes, sanitary fitting etc.	Bangladesh, Nepal, Sri Lanka.
Seamless tubes	Bangladesh, Nepal, Sri Lanka, Pakistan
Sheets of iron and steel, billets, slabs, fabricated construction material	Bangladesh, Nepal, Sri Lanka, Bhutan Maldives
Industrial fasteners	Bangladesh, Sri Lanka.
Consumer durable and kitchenware, pressure cookers etc.	Bangladesh, Nepal, Sri Lanka, Pakistan
Tinplate and metal cans for packaging	Bangladesh, Nepal, Sri Lanka, Bhutan Maldives, Pakistan

Railway track material	Bangladesh, Pakistan, Sri Lanka
Transport equipment	
Commercial Vehicles	Bangladesh, Nepal, Sri Lanka, Pakistan
Passenger Cars	Bangladesh, Nepal, Sri Lanka, Pakistan
Two/Three-Wheelers (Motorcycle, Scooters, Mopeds)	Bangladesh, Sri Lanka, Pakistan
Automotive Component	Bangladesh, Nepal, Sri Lanka, Pakistan, and also imports from Pakistan and Sri Lanka
Railway locomotives, Coaches, Wagons, spares and signalling equipment etc.	Bangladesh, Pakistan
Bicycles and its Parts	Bangladesh, Nepal, Sri Lanka, Bhutan Maldives, Pakistan
Nonelectrical Machinery	
Internal Combustion engines, and parts like pistons etc.	Bangladesh, Pakistan, Sri Lanka
Steam boilers and auxiliary plants	Pakistan
Agricultural Machinery, Tractors, Tillers, Harvestors, etc. and parts thereof	Bangladesh, Nepal, Sri Lanka, Pakistan
Civil engineering and material handling equipment	Bangladesh, Nepal, Sri Lanka, Bhutan Maldives, Pakistan
Textiles, jute, and leather machinery	Bangladesh, Sri Lanka, Pakistan
Metal working machinery parts, machine tools, wire drawing machines	Bangladesh, Sri Lanka, Pakistan
Hand tools	Bangladesh, Nepal, Sri Lanka, Bhutan Maldives, Pakistan
Pumps, Centrifuges valves and compressors	Bangladesh, Sri Lanka, Pakistan
Chemical papers, machinery	Bangladesh, Pakistan
Testing and scientific instruments and apparatus and medical instruments	Bangladesh, Sri Lanka, Pakistan
Oil prospecting instruments	Bangladesh, Pakistan
Fishing equipment such as mechanized fishing boats, FRP Beach Landing crafts, fishing nets, freezing plants etc.	Bangladesh, Sri Lanka, Maldives, Pakistan

Source: Economic cooperation in the SAARC Region by research team VR Panchmukhi and at all issued under Research and Information System. P, 160-163. Compiled from www.aric.adb.org.country profiles.

South Asian Country's Trade Potential in Commodities

Table No.1.2

Country	Major Export Items	Major Import Item
Bangladesh	Jute & jute Products, Tea, Ready-made Garments, Frozen Fish and Shrimps, Seafood, (\$ 5 billion or 75%) Leather & Leather Goods, Fertilizer, Spices, Vegetables, Manpower.	Petroleum (Crude), Office Equipments, Plant & Machinery, Automobile, Construction Materials, Dyestuffs Chemicals, Ferrous & Non-ferrous Metals, Minerals, Iron and Steel (\$ 6 billion or 75%) Textile, Edible Oil, Milk Products, Raw Cotton, Cement, etc.
Bhutan	Timber, Dolomite, Spices, Calcium Carbide, Gypsum, Electricity, Cement, Fresh & Canned Fruits & Juices, Alcoholic Beverage, (\$80 million or 75%) Cardamom, Timber Products, Minerals.	Petroleum Products, Machinery, Iron & Steel, Automobile, Textiles, Agriculture equipments. Consumer Goods (\$120 million or 75%), Sugar, Edible Oil, Rubber, tire, Wheat.
India	Software, Pearls, Jewellery & precious stones, Pharmaceuticals, Machinery, Vehicles, Metal Products, Tea, Mate, Clothing, Iron Ore and Steel, Films \$ 42 billion or 75%) Cotton Products, Petroleum, Handicrafts, Leather & Products	Crude Petroleum Products, Machinery, Pearls, Precious and Semi-Precious Stones, Chemical Products, Edible Oils, Vegetables & Fruits, food stuff, (\$43.5 billion, 75%) Vehicles, Fertilizers, Rock Salt, cotton, sugar, Ceramics & Melamine.
Maldives	Dried Skipjack, Canned Fish, Frozen Skipjack, Shark Liver Oil, Salted Dried Skipjack & Reef Fish, Apparel & Clothing Accessories (\$ 67 million Or 75%), Red Coral, Cowries Shells and Mica	Consumer Goods, Petroleum & Food Items, Manufactured Goods, Machinery, Vehicles, Chemicals, Steel, Rice, Cement (\$ 292 million or 75%) Wheat, Sugar, Tobacco, Beverages, Paper.
Nepal	Cotton Garments, Woolen Goods & Carpets, Oil Seeds, Pulses, Hides & Skin, Niger Seeds, Jute & Jute Products, Handicrafts, Tea, Leather Goods, Paper & Paper Products (\$ 440 million or 75%), Silverware & Jewellery, Tooth Paste, Polyester Yarn, Toilet Soap, Pashmina Products, Vegetable Ghee.	Food & Live Animals, Chemicals & Drugs, Manufactured Articles, Construction Materials, Petroleum, Oil & Lubricants, Raw Wool, Automobiles & Transport Equipments, Machinery, Fertilizer, Textiles, Edible Oil (\$ 1.07 billion or 75%) Cement, Electrical Goods, Industrial Raw Material
Pakistan	Raw Cotton, Textiles, Cotton Cloth, Cotton Yarn, Synthetic Textiles, Garments, Hosiery Rice (\$7.1 billion, 75%) Carpets & Rugs, Leather, Leather Products including Leather Garments & Footwear, Ceramic, and Fish & Fish Products.	Petroleum & its Products, Chemicals, Nonelectrical Equipments, Machinery, Transport Equipments, Iron & Steel Products, (\$7.6 billion or 75%) Edible Oils, Electrical Goods, Fertilizers, Tea.
Sri Lanka	Tea, Rubber, Gems, Marine Foods, Semi Precious Stones, Coconut Oil & Coconut Products (\$ 3.6 billion or 75%). Ready-made Garments.	Machinery, Petroleum, Chemicals, Pharmaceuticals, Iron & Steel, Vehicles, Textiles, Dairy Products, Fertilizers (\$ 4.7 billion or 75%), Pulp & Paper Products, Sugar.

www.wto.org.wp.216191.on 29th Sept. 2004 at 11.22am.

If we go through table no.1.2 deeply all countries are complementary to each other their exporting and importing products have comparative advantages. They can fulfil their needs within the region itself.

Major issues such as trade facilitation, investment, infrastructure, transit, are needed to be taken care in regional cooperation. Negotiations are already being started within the regions. Some common issues like lack of connectivity, geopolitical issues, free movement of people and lack of information needs to pay more attention. Modi Government has also given attention to importance of neighborhood. Despite some significant progress has been made in South Asia, this region has experienced several problems. First, the asymmetry between India and the rest of South Asian countries has been a major problem. Unlike other regional groupings, SAARC has not been able to solve this. Secondly, adversarial relationship between India and Pakistan has affected adversely SAARC functioning. Finally, despite all the talk of regional cooperation, South Asian countries lack even minimal understanding, of political and security issues. Although having potential products as shown in Table no 1.2 yet economic opportunities are not fully trapped in these countries.

2. Technology

Technological capability, innovation capability refers to the ability to develop, search for, absorb and exploit knowledge commercially. The innovation capability term was used by Kim in 1997. (Feberberge at all, 2010, p. 9) Innovations and technological capabilities increases the capacity building of any country leads to human capital resource development. Technological innovation and Information Communication Technologies (ICTs) represent a way for countries to foster economic development, improve levels of education. Technology plays an important role to enhance growth of any country. New technologies and the general expansion of the social and industrial uses of knowledge represent the central engine for economic growth in the United States. (Walshok, 1997, p. 18)

As per neo-classical growth theory Robert Solow (1956) according to which technology may be assumed to be a so-called 'public good' and catch up and convergence in the global economy should be expected to be relatively automatic. However, writers from several other strands, such as economic historians, with Alexander Gerschenkron (1962) as the prime example, or economists inspired by the revival of interest in Joseph Schumpeter's works, have been much less optimistic in this regard. Schumpeter always believes in innovations and creative destructions. Which means older products should vanish from the market and new one should come on the market. According to these writers, there is nothing automatic about

technological catch up. It requires considerable effort for organizational and institutional change to succeed (Feberberge at all, (2010, p. 2).

Innovation is often seen as carried out by highly educated labor in R&D intensive companies with strong ties to leading centers of excellence in the scientific world. Innovations not only produce new products, but also improve older products too. It includes not only technologically new products and processes, but also improvements in areas such as logistics, distribution and marketing. South Asia has to exploit technology to their own advantage, and developing all countries of the region and need to develop the necessary capabilities for doing so. The technology is necessary to generate further advances of human development. Combination of technology and economic integration of South Asia could enhance the growth rate of South Asia as well as generate advancement of human resources.

Economic opportunities enable people to manage their assets in a way that generates income and options. In this globalization era Friedman has rightly said “the business of business is business” this is exactly the what gives the firms the capability and credibility to expand economic opportunity. (Kramer & Jenkins, 2007, p, 4). Business activities create jobs, cultivate inter firm linkages, enables technology transfer. It also builds human capital and physical infrastructure and generates tax revenue for the Government also.

Recognizing the escalating revolution in the Information and Communication Technology (ICT) sector, which has tremendous opportunities and daunting challenges, originated the issue of communications received due prominence in the SAARC process. The Heads of State or Government at their Ninth SAARC Summit (Male’, May 1997), noted that inadequate communications facilities amongst the Member States were a major hindrance to closer economic cooperation. They stressed the importance of developing infrastructure and adequate communications networks among Member States to reinforce the process of economic cooperation.

Collaboration of firms allows parties to share knowledge and information, access of innovations creates economies of scale. It further enhances the capabilities and capacity building of the firms. They look for more resources suitable environment and create new opportunities. ICT has become the foundation of every sector. Openness or interaction across countries border earlier facilitate technology transfer and stimulates innovations.

The Leaders at the Thirteenth Summit (Dhaka, 13 November 2005), there was an agreement signed by leaders to make important strides in the areas of science, technology and higher education, to meet the challenges of the twenty-first century and decided to give priority

attention to encourage regional cooperation in these areas to derive benefits from the synergy of collective, well-planned and focused initiatives undertaken by Member States (SAARC Leaders s 13th meeting in Dhaka ,2005)

It also considered proposals including Programme of Cooperation, SAARC Initiative for Industrial Research and development, and short term activities to be carried out under Action Plan on Science and Technology, during the year 2009-10.(technical committee 4th meeting 2009) It also considered proposals including Programme of Cooperation, SAARC Initiative for Industrial Research and development, and short term activities to be carried out under Action Plan on Science and Technology, during the year 2010-2011(technical committee s 4th meeting 2010).

Complementarities within the region exist due to climatic and geological reasons as far as the agriculture and allied activities are concerned. Thus, such an R&D centre can work on inventing new varieties of seeds, fertilizers usage, collect and disseminate information on proven agricultural technologies and effective farm practices. Such a centre can also provide training to the farmers for applying new technology to their farm holdings. Now a days contract farming is a popular technique for enhancing productivity in agriculture, especially relevant for high-value food items. Studies have revealed that contract farming benefited farmers by providing them with specialized inputs, technical assistance, credit, and an assured market, thus solving a number of problems smallholders typically have in producing new high-value commodities.(Das,2009 p,42)

3. Telecommunication

An effective and economical regional tele-communication regime is an essential factor of connectivity, encouraging the growth of people-centric partnerships. The technology is playing a major role in disseminating knowledge amongst population. Many of the developed countries have already started MOOCS (Massive Open Online Courses) through well known Universities. The various platforms have collaborations with well known Universities and Institute to provide such courses online under the guidance of eminent professors or authorities in that subject. These courses are either free or at a nominal charge for various kinds of certifications. These courses are different from correspondence or open learning courses. They use various components of media like videos, web chats, webinars and peer evaluation before certification. Thus technology surely supplements the dissemination of knowledge and otherwise is also true. To evolve a coordinated approach on issues of

common concern in international telecommunication has become prerequisite condition for all. In order to achieve these goals and objectives, the ministers adopted the Revised SAARC Plan of Action on Telecommunications. They stressed the need for the Member States to endeavour to move towards a uniformly applicable low tariff, for international direct dial calls within the region.

The Working Group on Telecommunications and Information and Communication Technology discussed on the proposal of Upgradation of National and Regional Telecom Infrastructure and agreed in principle that the capacity of the existing inter-country links needs to be increased; that the maximizing the use of terrestrial system such as optical fiber, microwave link and that the growth of telecom traffic, both voice and data meant for SAARC countries will require to remain within the region. The Meeting decided that India may start taking necessary action with the objective to set up South Asian Postal Union as proposed. The Meeting was informed that the commissioning of the project on Tele-Education E-Network requires signing of an MOU and recommended that the Member States may sign MOU to this effect in next six months. The Meeting also discussed on various issues Cross-border interference of Radio signals, Revision of accounting rates and collection charges among SAARC Countries, Multilateral utilization of terrestrial communications routes among SAARC countries, Cyber Security etc.

The Silicon valley is the best example can be discussed here to be learned through alliance and technological transformation.

Silicon Valley in California, Route 128 in Massachusetts, the Research Triangle in North Carolina, Silicon Glen and Cambridge in the United Kingdom. Sociological analyses such as that by Rogers and Larsen (1984) on Silicon Valley also emphasize the significance of leadership and social networks, the human infrastructure, as it were, for the development of the shared values and mutual trust critical to communities in adapting to continuous change and innovation in a knowledge economy. (Walshok,1997p, 18) The California State which was known as agricultural state, has become an IT hub and generated employment for highly skilled people and contributed in development of USA economy.

Taking lesson from Silicon Valley India has taken step in building technological park but there is need to take major step by South Asia. To promote cooperation in the enhancement of telecommunication links and utilization of information technologies within the SAARC region; To minimize disparities within and among Member States in the telecommunications field; To harness telecommunication technology for the social and economic upliftment of the

region through infrastructure development by optimal sharing of available resources and enhanced cooperation in technology transfer, standardization and human resource development.

Figure 3.1

The online showcasing of products is becoming popular amongst the new generation. All kinds of products are available on-line including all basic necessities to luxurious. It is free from hassles of going physically to markets which save lot of time and energy. . These sites may be hosted in a developed country for retail and wholesale supplies serving the demand of developing countries in turn it generates revenue for themselves. Instead of paying to the developed countries, if the SAARC countries manage their own such websites then they can generate revenue for SAARC Region and hence their potential can be utilised.

Figure .3.1

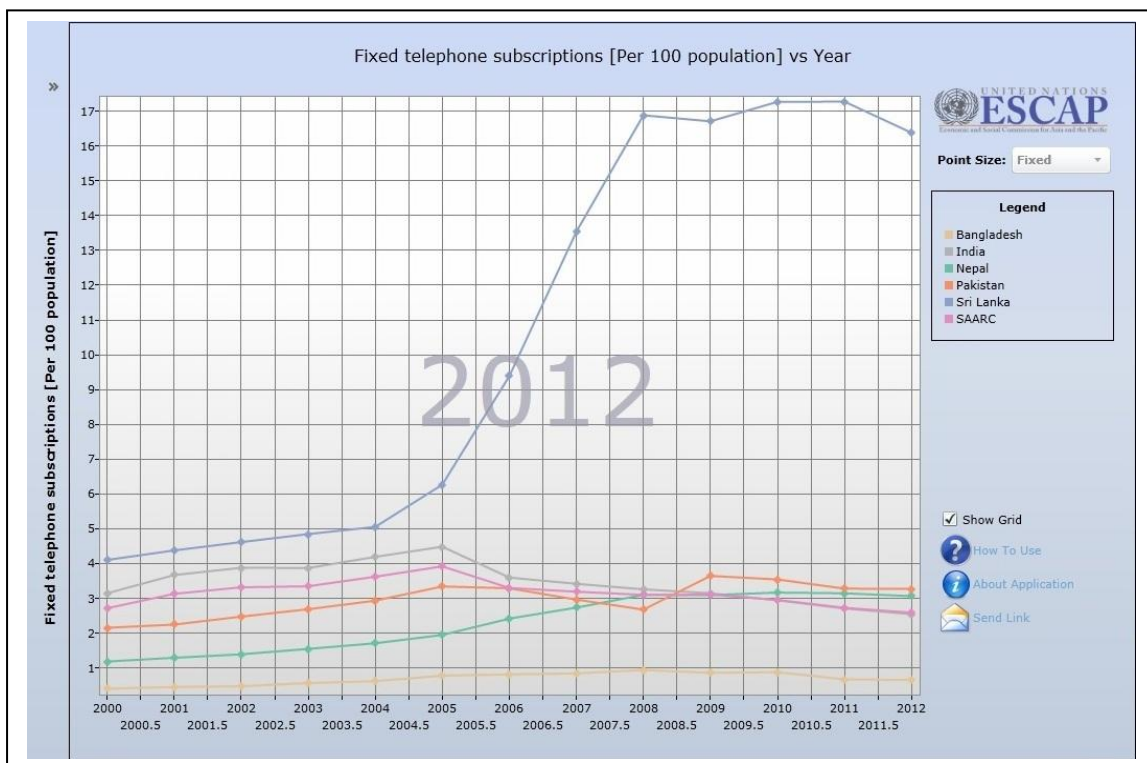
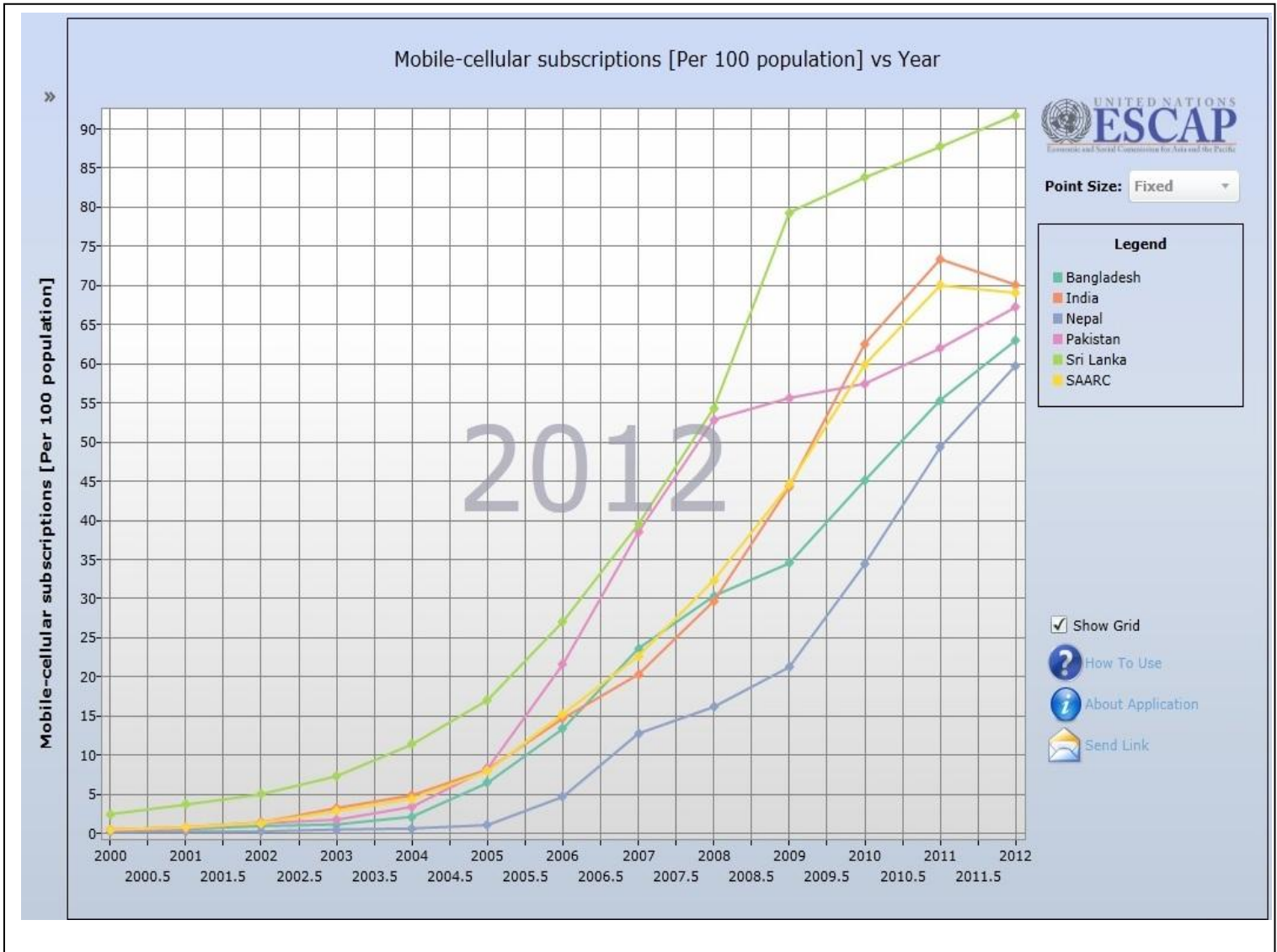


fig.3.2



Telecommunications has also been boosted up in this region and many connections has been taken by the people of this regions. as shown in Fig no 3.1. , Fig. No 3.2. But there is need to improve the connectivity within the region .

To conclude, we can say that the major obstacle to trade and services in the region is the lack of quality infrastructure both within and connecting countries of the region. There are several components of infrastructure that are not up to the required standard. In transport infrastructure there is poor rail, road and air connectivity in the region, increasing transaction costs for trade in services. Technology can play major role in connectivity and Modi's formula of HIT can also work. But immediate connectivity can be done through telecommunication as already some steps have been taken for on line courses. It is essential

that there is a greater internet and telephony penetration throughout the region. Online shopping can also help in increasing trade within the region. It has also been highlighted that while trade integration in the region has remained low. The real potential for the region lies in the scope of investment cooperation that can create production networks and help evolve supply chains by strengthening trade-investment linkages. It is particularly significant in forging developmental cooperation in the region by exploiting geographical advantages. This would also be instrumental in creating adequate export supply capacities and help expanding the size of the markets. All challenges can be overcome through cooperation. To get rid of poverty within the region neighbourhood should be prompted to bring peace in the region. Expansion of economic activities can dilute political problems and border issues can be resolved to some extent. If Political leaders will understand that peace brings prosperity and they should put efforts to bring prosperity in the region.

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