CHAPTER I
INTRODUCTION

INTRODUCTION

The present study is on Satellite Educational Communication with emphasis on understanding and comparing the World Broadcast Systems with specific reference to India. The aim of the study is to obtain information about the broadcast systems in Europe, Asia and the United States with the purpose of studying the status of their educational broadcasting. To compare and analyze the broadcast systems and come to a conclusion regarding the framework of a broadcast policy. The study, being descriptive research covers issues that need attention, in view of the developments taking place in the broadcast systems of Europe, USA and Asia due to communication satellites. Therefore the most developed nations and developing nations in the Asian region are selected and surveyed. The advent of communication satellites have brought about a change in the broadcasting scenario in many of the Asian countries. Consequently broadcasters are forced to reassess their role in a new environment. Satellite communication technologies have exhibited their capabilities for providing services related to education, Tele-medicine, Tele-education, healthcare besides information on planning and development.

"Education is of extreme importance as it is the key to equipping the workforce with the skills needed to develop national economies. The importance is exemplified by the “Education for All” movement, a global commitment to provide quality basic education
for all children, youth and adults, which links directly to the UN Millennium Development Goals (MDGs). Higher education and life-long learning are today more important to development than ever before, due to the role knowledge plays in development – ‘knowledge is power’.¹ The social and economic development of a nation depends on the information and education level.

There is no country in the world which is economically powerful but educationally backward. Russia, USA and Japan are educationally powerful and having powerful economies. These countries have realised that “knowledge is a key factor contributing to economic development and human resource development through education and training which is essential”.² But inequalities in access to quality education are still tremendous.

As we all know Electronic Media are a powerful medium in educating the masses. So nations are making use of communication satellites for broadcasting and through them for distance education programs. There are nations using satellites for Education. Thus the concept of “Teacher in the Sky” came into existence. EduSat an Indian Satellite is exclusively devoted to the field of education. “Besides the programs for School, College and Higher education networks for IGNOU, CEC, UGC, NCERT, AICTE and DST have been set up using the national beam.”³ Similarly countries like Japan, Sri-Lanka and England have come up with the “University of the Air”. “Besides supporting formal education, satellite systems can facilitate dissemination of knowledge to the rural and remote population.”³ All this is due to the broadcasting systems of the various nations.
SATELLITE COMMUNICATION

“Satellite communication technology is a tremendous force for change and innovation. Immense developments have taken place since the first satellite telephone call till today's global coverage of the Olympics with more than 3 billion viewers, satellites have helped create a world community. 60% of all overseas communications is satellite based.”

The global satellite communications industry has entered in a new phase of expansion with broadcast and mobile communications experiencing an explosive growth. Although modern communication industry draws on many disciplines technological capability remains an important cornerstone of success. It is essential to have the ability to understand technology and to respond to the changes in industry caused by technological advances.

“IT together with communication technologies has brought about unprecedented changes in the way people communicate, conduct business and interact socially. With the advent of Information Technology it has become possible for the common man to access global information.”

“The electronic communication encompasses telecommunication, broadcasting and information technology, leading to a global information infrastructure (GII) which is capable of carrying any type of information, be it text data, voice or video. All information is now broadly defined to embrace voice in telephony, text in fax and newspaper, images in video and television broadcasting and data in computers.” The broadcast of sound/video/text/data all into one stream has become a reality. “The transmission system can also be a
number of delivery media like satellite cable etc. Several types of services can be provided over a common link. Therefore broadcaster has become an information provider.” The concept of global information infrastructure has been evolved with broadcast becoming a component of the overall scheme.

**EDUCATIONAL BROADCASTING**

The development of an entire country depends on education. The question arises whether these powerful media should be left to the wisdom of the State or we educationists should play our role in regulating and directing it. The state always tries to exploit these media to perpetuate themselves in power. This involves all kinds of falsification of facts. Different states have different political systems and different political ideologies. It is from this point of view that I am studying the functioning of the electronic media in various countries especially in the developing countries of Asia which have emerged from similar political, social and economic background with special focus on India. There are countries where the broadcast system is controlled by the state as in China and Pakistan, and others where it is comparatively free.

The development of Science and Technology in the 20\textsuperscript{th} century is the most important development for the survival of a nation. Bio-Technology, genetic engineering has appeared as Sun-rising Technology and these Biological revolutions have tremendous potential to transform society. “Modern biotechnology has far-reaching consequences for agriculture, environment, medicine and industry. In agriculture, several tools of modern biotechnology are used, such as tissue culture, molecular breeding, diagnostics and
modern recombinant vaccine production. Through the use of tissue culture vast quantities of clean (pathogen-free) vegetatively propagated planting material can be produced as clones from a particular plant tissue. DNA characterization can speed up crop improvements through conventional breeding. Molecular diagnostics allow pathogens to be quickly and accurately identified.” In the 1990’s specific genes were identified and in 1997, the world’s first clone, Dolly the sheep was cloned. It was in 2000, that scientists mapped the human genome and stem cells were harvested from human embryos. This led to widespread concern that humans would also be cloned and scientists would create designer babies.

Biotechnology has been hailed as a technology that would benefit developing and developed nations alike. Support to the application of biotechnology is essential and positive public perception would enable better understanding of the concepts related to genetic engineering and genomics.

Many countries, scientifically and technologically advanced have been promoting science and technology education in these areas and in order to make education strong are utilizing electronic media for education and implementation. Therefore the need was felt to have an insight into the Broadcasting system of India in the light of the Broadcasting scenario in today’s world, with emerging new technologies leading to new innovations in Broadcasting.

Satellite TV is increasingly being used for educational purposes. This has been demonstrated by the success of the Satellite Instructional Television Experiment (SITE) in India followed by similar
experiments in Canada, China and Latin America in the early 80’s. These experiments established the tremendous potential of using satellite TV for educational purposes. Satellite based distance education facility continues to have an impact in Indonesia. Developing countries like Mexico, China, Brazil have developed their own satellite based educational system, prompted by the effective use of INSAT in India, AUSSAT in Australia and PALAPA satellite in Indonesia. Satellites are among the information and communication technologies (ICTs) with the potential to by-pass terrestrial barriers to deliver educational services to scattered users.

With the advent of satellite communication immense changes are taking place in the broadcasting environment. World broadcasting has entered a period of unprecedented change. “A global fleet of satellites and access to a worldwide network of earth stations provides the flexibility to uplink and downlink anywhere in the world. One now witnesses the spread of 24 hour broadcasting. Thousands of earth stations around the world are an essential element in the global connectivity. These earth stations include antennas, amplifiers, receivers, modems and test equipment.”

Recent years have seen the emergence and increased application of new technologies for instruction. Electronic media have had an impact in a number of areas, especially in technologically-based distance education programmes. Technology has raised the quality of individualized distance instruction.

The development of any nation is closely linked to the level of higher education in the country specially that of Science and Technology. Higher education and life-long learning are essential for
development, due to the role knowledge plays in development – “knowledge is power”.

New megamedia organizations have come into existence due to large scale corporate mergers. There is global expansion of satellite broadcasting and government control over broadcast reception especially in Asian countries. Amongst the Asian countries there is a trend towards broadcast expansion to other countries and also a global trend towards the digitization of broadcasting. Cable, satellite and digital technologies are essential components in the broadcasting systems of the world.

**WORLD BROADCASTING SCENARIO**

The Fusion of broadcasting and Tele-Communications, has brought about the borderless-ness of broadcasting. Consequently many countries of the world are searching for a broadcasting system that can handle these changes in the broadcasting environment, and to follow such moves, it is necessary to understand the status of each country's broadcasting system.

World communications systems can make it possible to get any almost television show in the world, from almost anywhere in the world. Different cultures might require different types of programming around the world. On the other hand, shows like CNN have made the formats of programs uniform around the world.

The developed and the developing countries have witnessed revolutionary changes in their broadcasting systems during the last two decades. Satellite, cable and digital technologies have played an important role in these changes, but the main force for bringing about change has been the deregulation and commercialization of the
airwaves. A new competitive and commercial environment has come into existence.

“Broadcasting has added a totally new dimension to modern communication by bringing the outside world into the individual home. Apart from the entertainment, the potential of Broadcast Technology can be harnessed for poverty alleviation programs, education, socio-economic development and building a strong democracy.”

The broadcasting in the new millennium poses exciting challenges both to the engineers and content creators in terms of providing the services to meet specific objectives in the most cost-effective ways. Traditionally, defined as point to multipoint communication system, the technology in cable distribution, telecommunications and satellite operations is blurring the distinction between certain broadcasting and telecommunications activities. Currently, processes are underway to deal with new distribution technologies such as Digital Radio, Direct to Home Satellite (DTH) services and Multipoint Distribution Systems (MDS).

The evolution of new form of technologies and imaginative forms of applications of the new and old technologies makes the lives of the people better in several ways. There is a greater realization that instead of a single track technology lateral integration of technologies can deliver startling results and the world seems to be moving towards such systems. The very fact that the governments have announced IT policies indicates that they have recognized core technologies and e-governance, sustainable development, globalization of economy and social empowerment. Information is the key to democracy.
“Information is now broadly defined to embrace voice in telephony, text in fax and newspapers, images in video and television broadcasting, and data in computers. All information can be digitized, transported, stored, retrieved, modified, and then distributed. All of these are getting transportable over common infrastructure viz. high-speed, broadcast, digital electronic highways.”

The empowerment of consumers is changing the way global telecommunications works, even though this is not the aim of the media distributors.

In the broadcasting field development of cable television, satellite broadcasting, Hi-vision television, will progress by use of space communication, enabling information of the world to be shared with local communications in real time. As our world grows more dependent on high speed digital technologies, government regulation of communication media and telecommunication industries is increasingly affecting how we are educated and entertained, how we keep healthy, how we shop and how we create information ourselves.

Broadcasting because of the amazing speed, reliability, as well as the relatively low cost of communication, became widely used by governments and private enterprises all over the world. Radio and Television became the first mass medium capable of disseminating information instantly from one to many. It has been a technology that has influenced growth of nations and planet earth. Radio evolving as more affordable technology, has become a fundamental component of modern culture and has changed the world.

Radio and Television have evolved as an efficient method of information transfer absorbing in it many technologies and
developments. Satellite broadcasting services enable home viewers to receive broadcasting directly from satellites.

“Traditionally broadcasting – a point to multipoint communication system - was defined as "a medium for information, education and entertainment" to masses using sound or /and vision. However, 1990s have witnessed rapid development of broadcast, computer, and communication systems.”

“The development of digital compression techniques has resulted in evolution of multimedia broadcasting and data broadcasting. The broadcast of sound/video /text /data all into one stream has become a reality. The transmission system apart from analog transmitters, can be a host of delivery media viz. Satellite, cable networks. Several types of services can be provided over a common link. Therefore broadcaster has become an information provider. The concept of Global Information Infrastructure (GII) and National Information Infrastructure (NII) has been evolved with broadcast becoming a component of the overall scheme.”

The radio, rightly called "Radio for eye", is entering a transition period which will include the introduction of digital technology capable of providing video along with multi channel audio. The broadcast distribution industry will change dramatically. There will be many competing technologies for delivery of multimedia services. Cable will face major competitive challenges as a result of converging technologies. Certain telephone companies will also wish to be licensed for Internet and broadcasting.

The future will demand a critical reappraisal of traditional means of delivery and force the service providers to resort to a
degree of integration of these means consisting of traditional transmitters, cable, satellite, optical fiber, Internet etc. Hypermedia Broadcasting, based on the digital and Internet technology, has evolved, leading to the appearance and development of many new broadcasting services for global access of limitless information. Pressure to produce content for markets beyond that of traditional 2D television, and to cut the costs of program-making, force broadcasters to consider radical new approaches to program production. The cost effectiveness is a key factor in choosing the new technology. The policy and regulation issues need to be addressed immediately to harness the potential of broadcasting for poverty alleviation, education and development.

Television- like all major forms of electronic communication has gone global. (Verma: 1993:) In November 1999 Arthur C. Clarke told the world television forum, that essentially global television had been the driving force in the creation of the global family and the unification of the world. With the communications and technological environment undergoing rapid changes, global television is becoming a extremely powerful medium in which its services have the ability to enhance the flow of information to a greater international population. The increasingly changing nature of global television offers audiences a highly possible future in which regular viewing habits will be greatly altered, providing a more active involved experience. It will be a much higher quality sensory experience and it promises to be much more viewer controllable than ever before (Doyale: 1992).

World communications systems can make it possible to get any television show in the world, from almost anywhere in the world.
Different cultures might require different types of programming around the world. On the other hand, shows like CNN have made the formats of programs uniform around the world. Will we have diversity, or uniformity, in the future? There are hundreds of millions of television sets and Radios all over the world.

Countries like the US, Canada, and England have sophisticated broadcast systems. Developing countries like those in Central and South America do not. Some countries have private broadcasters, and others have government broadcasters. Some countries have a mix of both private and government ownership. The variety of control, from complete government control of broadcasting systems to total privatization of ownership, depends on the form of government in each country. The US has private ownership, but the Federal Communications Commission (FCC) regulates broadcasting. Canada has government broadcasting by the Canadian Broadcasting Company (CBC), but they also have private ownership because they want diversity in programming. In Cuba the government has control over all stations.

Broadcasting has added a totally new dimension to modern communication by bringing the outside world into the individual home. Apart from the entertainment, the potential of Broadcast Technology can be harnessed for poverty alleviation programs, education, socio-economic development and building a strong democracy. Broadcasting poses exciting challenges both to the engineers and content creators, in terms of providing the services to meet specific objectives in the most cost-effective ways.
Television could not exist in its contemporary form without satellites. Since 10\textsuperscript{th} July 1962 when NASA used the Telstar satellite, orbiting communications satellites have been routinely used to deliver television news and programming between companies and to broadcasters and cable operators. Mid 1980’s saw the increasing use of satellites to broadcast programming directly to viewers, to distribute advertising and to provide live news coverage. Arthur C. Clarke is credited with envisioning the key elements of satellite communications. This geosynchronous orbit is where several hundred communications satellites sit today providing telephone and data communications and mostly relaying television signals. Television is the largest user of satellite band width. Direct Broadcast Satellites (DBS), can transmit to a unlimited number of ground receivers simultaneously.

Typical Television transmissions via satellite in the 1990’s are digital and are often compressed and encrypted. Compression technology is expected to considerably increase the number of DBS services available. Developing countries have demonstrated success in using satellite delivered television to provide useful information to portions of their populations out of reach of Terrestrial Broadcasting. In 1975 an experimental satellite communications project called SITE (satellite instructional television experiment) was used to bring informational television programs to rural India. Later India developed its own satellite network. China also embarked on an ambitious program of satellite use for development claiming substantial success in rural education.
Governments worldwide are re-evaluating their stance on issues of national sovereignty and control of incoming information, as Star TV transmits television programming over much of Asia. Star TV reaches over more than 50 countries and potentially half of the world’s population. In the late 1970’s people out of reach of cable Television found satellite distribution of Home Box Office, Home satellite Dishes popular. Later Direct Satellite Broadcasting (DBS) to small home dishes became possible. Since 1988 DBS has been heavily used in Europe and rapidly gaining popularity in the United States.

Television like all major forms of electronic communication has gone global. In November 99 Arthur.C.Clarke told the world television forum that essentially Global Television had been the driving force in the creation of the Global family and the unification of the world. With the communications and technological environment undergoing rapid changes Global Television is becoming an extremely powerful medium in which its services have the ability to enhance the flow of information to a greater international population. The increasingly changing nature of Global Television will alter the regular viewing habits providing a more active and involved experience. This will be viewer controlled. All this is possible due to the emerging trends in communication technology, developments in satellite technology.

“Satellite Communications technology offers the unique capability of being able to simultaneously reach out to very large numbers spread over large distances even in the most remote corners of the country. It has proved to be a strong tool to support development education. Developing nations are faced with the
enormous task of carrying development oriented education to the masses at the lower strata of their societies. These sections of the society have low literacy.” So nations are using satellites for education.

The Indian satellite EDUSAT is exclusively devoted to the field of education. Besides the programs for School, College and Higher education networks for IGNOU, CEC, UGC, NCERT, AICTE and DST have been set up using the national beam. Similarly countries like Britain Japan and Sri-Lanka have come up with the “University of the Air”.

“Besides supporting formal education, satellite systems can facilitate dissemination of knowledge to the rural and remote population.” All this is due to the broadcasting systems of the various nations. Knowledge is a key factor contributing to economic development. Thus human resource development through education and training is essential and is a key component in the strategy for economic restructuring in developing countries.

Before studying the intricacies of the World Broadcast Systems and their relevance to education, it would be appropriate to have an insight into the satellite educational communication system.

**COMMUNICATION SATELLITES**

Communication satellites play a significant role in the development of a country especially in today’s world of telecommunication, computers, phones and televisions, by linking populations across the globe and making them literate and well informed.
The potential of satellite technologies to improve access to education is enormous. Satellites are among the information and communication technologies (ICTs) with the potential to by-pass terrestrial barriers to deliver educational services to scattered users. Satellite delivery of educational programs is one of the video tools for education, as described by E. Lynn Oliver in *Distance Education, Strategies and Tools*.

Satellite delivery of educational programs is, in fact, very successful. A complete network of satellites orbits our Earth, available for transmission of distance learning programs. The Iridium project, a network of satellites using low earth orbiting satellites, promises further use of satellite for education programs. Iridium’s primary focus is making wireless personal communications available anywhere on Earth. A benefit of this program is to make synchronous communications for distance education programs easier than ever.

There have been an increasing number of broadcast satellites owned and utilized by commercial interests from within Asia. The developed world besides China and India, has the technology for the manufacture and launch of these satellites. Intelsat and Intersputnik have been co-opted by Western and Asian corporations alike seeking fast-track entry into the lucrative businesses of commercial satellite manufacture, ownership, launching, leasing and broadcasting.

**Global Satellites**

*Intelsat*, a consortium of 133 nation-states has 22 powerful satellites globally; 12 of them have large footprints in the Indian Ocean and Asia-Pacific region, carrying such channels as Nippon TV, Deutche Welle TV, ESPN, RFO Tahiti, Channel 7 Thailand, PTS
Taiwan, Canal France, Turner, all Australian networks and TVNZ. Intelsat 7-series and Intelsat 8-series satellites, are positioned over the Pacific Ocean.

**PanAmSat** has two satellites in the Latin American region, giving it a global network. It’s Pas-2 and Pas-4 beam such channels into Asia as ABN, Disney, NHK International (Japan), CCTV (China), Sony, ABS-CBN, TNT, and Doordarshan International (India). The newer Pas-4 satellite has trans-Indian Ocean coverage, and carries further channels on its specific African and European beams. Pas-4, attracted Indian channels including Doordarshan (Asia Pacific Television: Cable and Satellite 1995:141).

**Intersputnik** Another international satellite consortium, comprised the former USSR and its allies in Europe and Asia. Operated by the Russian Ministry of Postal Services and Telecommunications and under the system designation of Stationar, it has a range of ten Gorizont, Ekran and Raguda satellites covering the Asia region.

**Rimsat**, the U.S.-owned Rimsat organization operates two Russian-built satellites and covers a vast area from above the Pacific Ocean, stretching from Alaska in the east, Russia in the north, India in the west and Antartica in the south.

**Regional Satellites**

Asiasat, the pioneer satellite operator established the transnational television market and set the trend for the global, regional, commercial and public satellites to follow in the region. The Asiasat1 satellite on which Star TV began was launched successfully and economically in April 1990 atop one of China's Long March III
rockets for use as a commercial broadcast satellite in the Asian region. About 60 percent of the transponder capacity of Asiasat1 was utilized for television, mostly transnational, compared with 11 percent on the inter-government Intelsat satellites. Hutchinson Telecommunications itself took control of a dozen of transponders on it for the purpose of running a pan-Asian television service. Most of the remaining transponders were leased by Bangladesh, Myanmar, Mongolia, Nepal, and Pakistan (countries which could not have afforded a satellite of their own) as well as China.

Asiasat had anticipated their transponders would be utilized for telephony, data transmission and domestic public television as is usual with developing countries, but the trend towards commercial satellite television in Asia followed closely that of Europe and North America instead. The technologically more advanced Asiasat2 was launched successfully in November 1995 (Television Asia 1996). With a larger footprint than Asiasat1, it covers much of Central Asia and Russia in the north, stretching to Australia in the south, Japan in the east, and East Africa and Turkey in the west.

Apstar A close rival of Asiasat is another China-funded company called APT Satellite Co., a consortium mainly owned by three Beijing government agencies: the Ministry of Posts and Telecommunications, China Aerospace Industry Corporation and a military science commission (Walsh 1994) as well as minority Hong Kong, Taiwan and Macao investors. Apstar planned for its satellites to carry a mix of transnational and domestic (largely Hong Kong, Taiwanese and Chinese) channels. CNN, Discovery, ESPN, HBO and TNT (the proverbial "Gang of Five") as well as other major
transnational broadcasters migrated from other satellite platforms to its Apstar1 satellite in 1994. Apstar 2R launched in October 1997, focused on Greater China, its 28 C-band transponders have a footprint covering most of Europe and Africa, and all of Asia including the Middle East and Australia.

**ThaiCom** The three ThaiCom satellites launched between 1993 and 1996, owned by the giant Shinawatra Group of Thailand provide coverage to Thailand and the Asia Pacific and are utilized by domestic television of the IndoChinese sub-region. Thaicom3 has 24 C-band transponders spanning Europe, Asia, Africa and Australia and 14 Ku-band transponders with spot-beams aimed at Thailand and India (APT Satellite 1996).

**Measat** Malaysia, an early user of Intelsat and Palapa satellites, had its own Measat1 satellite built by Hughes and launched by Ariane in December 1995. Owned by a private corporation, it has footprints centered on Southeast Asia (Via Satellite 1995). In additional to telecommunications services it carries a 40-channel pay-TV service on which both transnational and domestic channels are available. A second satellite Measat2 launched in November 1996 has a larger footprint stretching from Australia to South Asia.

**Domestic Satellites**

**Palapa**, an Indonesian-owned satellite network used for domestic broadcasting is also a transnational satellite platform. On its B2R satellite, which now carries the Indonesian national broadcaster TVRI, it also carried previously Malaysia, the Philippines and Papua New Guinea domestic public television. On its later satellite B2P it carried Indonesian commercial channels as well as transnational
channels such as CNNI, ESPN, Discovery, HBO, ABN, Channel 9 Australia, TVBI and MTV Asia. The high-power commercial Palapa C1 and C2 superceded Palapa B2P in the late 1990s. Satelindo, the private operator of Indonesia's third-generation satellites, opted for wider coverage and higher capacity for its Palapa C3 in order to meet commercial broadcaster demand (Via Satellite 1994b). Indosat, the government satellite telecommunications monopoly not only privatized but globalized its ownership.

**Chinasats** The China Telecommunications and Broadcast Satellite Corporation (CTBSC), a commercial arm of the Ministry of Posts and Telecommunications, has four satellites in place, Chinasats 1, 2, 3 and 5. The first three were built and launched by the Chinese between 1988 and 1990, and used for voice, data and television transmission by its domestic television services (Cooperman 1995). Chinasat5 is China's first foreign-built satellite, is used by a number of national and provincial television stations for domestic broadcasting (Cable & Satellite Asia 1996). Chinastar1, the replacement for Chinasat5, has a footprint covering most of Asia.

**Arabsat** Towards West Asia, the Arab Satellite Communications Organization, operated Arabsat 1C and 1D for telephony and broadcasting by West Asian states. The 25 transponders on Arabsat 1C carried national Arab broadcasters as well as transnational television such as CNN, Canal France International (CFI) and Middle East Broadcasting Centre (MBC), a London-based, Arab-owned channel. Arab 1D carries regional commercial broadcasters such as Arab Radio and Television, Orbit Communications based in Rome, and Future Vision based in Lebanon (Via Satellite 1995c). The
Comsat BW2 & Eutelsat W3A
http://www.satsig.net/sslist.htm

EUTELSAT W3A--- Launch date: 16 Mar 04

COMSAT BW2
PAKSAT I
hiddenfact.blogspot.com/2008/11/pakistan-plan...

CHINASAT 9
www.most.gov.cn/.../200806/t20080620_62608.htm
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www.thalesalenia-space-library.com/results.php...

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EDUSAT Launch  claudelafleur.qc.ca/images/Edusat-launch.jpg

PALAPA-C  www.boeing.com/.../palapa-c_93-09007_300x375.jpg

JCSAT  www.sorae.jp/news_img07/0921jcsat3a.jpg
ASIASAT 5 Satellite
www.boeing.com/.../asiasat4/asiasat4_hirez.jpg

ASIASAT 5 Satellite
www.ilslaunch.com/assets/pictures/original/As...
MEASAT 3  www.boeing.com/.../measat3/03pr_01605e_hirez.jpg

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XR to increase PanAmSat’s Communications Capabilities
www.boeing.com/.../galaxy_x_r_hirez.jpeg

INTELSAT 8
msl.jpl.nasa.gov/.../pictures/intelsat8.gif
Arabsat2 series of satellites has footprints that cover most of Europe, West Asia and Central Africa (Via Satellite 1994c). Arabsat 3A, was launched February 27, 1999.

India's Insat series of communication satellites initiated a communication revolution in the country. Edusat, launched by India is the world’s first educational satellite. The Insat satellites are used to provide long distance education, information alongside their broadcasting, tele-communications and weather forecasting functions.

**SATELLITES FOR EDUCATION**

China began to use foreign telecommunication and domestic satellites to meet the demands of the development of broadcasting, education and telecommunication. CETV-1 is a comprehensive education channel, providing information via Asia-Pacifica 1A satellite. CETV-2 provides information via Sino NO.1 satellite covering China and southeast areas of Asia. CETV1’s footprint covers more than 85 percent of the provinces and county cable-TV networks throughout China. At the same time, CEBSat, run by CETV, has become the most important satellite distance education system of China.

The University of the Air Japan began to broadcast programs by Sky PerfecTV! (a PerfecTV! service), in addition to broadcasts by the university's land-based television and radio stations. Programs are broadcast to the whole country from JCSAT-3 by CS digital broadcast (Sky PerfecTV!). The satellites used for broadcasting are BSAT-2A, JCSAT-4a, JCSAT-3, SUPERBIRD-c.
In India, satellite TV for educational purposes started after the huge success of the Satellite Instructional Television Experiment (SITE). INSAT is being used for educational TV broadcasting. INSAT satellites have been used to provide long distance education information along-with their broadcasting, Tele-communications and weather forecasting functions. The world’s first educational satellite EDUSAT, exclusively devoted to education uses “the virtual classroom concept to provide education to children in remote villages, adult literacy programs and training modules for teachers and quality higher education to students in areas without access to good technical institutes.”

EDUSAT is intended to meet the demand for an interactive satellite based distance education system for India and reflects India’s commitment to use space technology for national development, especially for the development of the population in remote and rural locations. A joint venture of the Ministry of Human Resource development and Indian Space Research Organization, EDUSAT is implemented through IGNOU, AICTE, ICAR, NCERT and UGC.

“In Pakistan, the communication satellite used for communication is PAKSAT-1. The launch of the first geostationary communication satellite, Paksat-1, in 1996, enables Pakistan to fulfill its communication, educational and strategic requirements, thereby entering into a new era of socio-economic development.”

“A significant portion of this satellite is used for educational purposes for which Higher Education Commission (HEC) has launched a national project. Under this program, Pakistan Educational and Research
Network (PERN) has been established under which 57 public and private sector universities are being linked together through fiber.

This new initiative of the HEC allows live lectures from top national and international institutions, to be linked through Paksat-I and be accessible to students and faculty members in various universities of the country. The Virtual University has been given the task to initiate this series of lectures. A project for starting four new digital TV channels exclusively for educational purposes has also been approved. The programs beamed through Paksat-I can be broadcast throughout Pakistan”.9

Sri Lanka’s first Educational Channel Nenasa launched on 1st May 2008 by the Ministry of Education is completely dedicated to education. Dialog TV provides free satellite technology to this project.

In the Middle-East Nilesat is providing educational, entertainment and cultural channels. It has begun to play a part in enhancing the flow of information, including bringing service to people in isolated and rural areas. Initiatives like Nilesat give people access to more channels, more opinions, and more information and ideas.”10

“The Australian national communications satellite AUSSAT, launched in August 1985, is used by government, business, and education. The most comprehensive educational project using the satellite, involved the state of Queensland, where the government had leased one of the satellite's transponders to provide services throughout the state. The network has a number of trial educational projects being developed, such as linking an elementary class with a teacher, remote-control videos for teacher use, teacher development telecasts, and postsecondary education for remote areas.”9
“ABC Asia Pacific launched in 2001 is the Australian public broadcaster’s satellite tele-vision arm covering southeast Asia and has expanded to the subcontinent and is on the verge of entering China. As a channel on pay-TV services, it provides English language teaching, news, Australian television drama and documentaries.”¹¹

UK makes use of the sky satellite service. Sky merged with BSB(British Sky Broadcasting) to form the BskyB network. It is a large commercial satellite network capable of reception anywhere within the European Astra satellite system footprint. “ASTRA is the first independent European commercial satellite broadcasting system, dedicated to television and radio transmission. The ASTRA series is capable of delivering programs and services all over Europe. The European satellite agency EUTELSAT launched a new series of “Hotbird” high technology broadcasting satellites.”¹²

“The ATS-6 with a very large unfurlable antenna demonstrated rural satellite video education services in the Appalachia region of the U.S. as well as in Brazil and India. The Communications Technology Satellite (with the Hermes satellite designed and built in Canada and with NASA providing the launch) also showed how very high powered satellites could broadcast educational video to rural areas using only very small aperture terminals.”¹³

“Satellite delivery of educational programs is very successful. A complete network of satellites orbits the Earth, available for transmission of distance learning programs. The Iridium project, a network of satellites using low earth orbiting satellites, promises further use of satellite for education programs. Iridium’s primary focus is making wireless personal communications available anywhere on
Earth. A benefit of this program will be to make synchronous communications for distance education programs easier than ever.”

**BROADCASTING AND SOCIO-ECONOMIC DEVELOPMENT**

Broadcast technology, besides entertainment can be harnessed for poverty alleviation programs, education, eradication of illiteracy and superstitions, socio-economic development and building a strong nation.

In the United States, communication scholars such as Daniel Lerner, Wilbur Schramm (Lerner & Schramm, 1967), and Everett Rogers (1962) stressed that developing countries required broadcasting to support modernization projects, campaigns and development. Wilbur Schramm while working for UNESCO recognized the power of mass media for economic and social development and termed it as the "magic multiplier”.

“Communication and communication media are important components, as well as indicators, of the development process. These are essential supports to development programs: a means of teaching, sensitizing, carrying development messages, channeling reactions between audiences and development workers.”

“Developing nations like India are faced with the enormous task of carrying development oriented education to the masses at the lower strata of their societies. These sections of society are characterized by low literacy, low income, low life expectancy, high birth rate, high infant mortality and very low access to, media.” The task of providing development education to these sections spread in remote areas and which are large in number, require media support. It is a difficult task in which broadcasting via satellite is playing a
major role. “Satellite Communications technology offers the unique capability of being able to simultaneously reach out to very large numbers spread over large distances even in the most remote corners of the country. It has proved to be a strong tool to support development education.”

Globally, biotechnology is providing powerful tools for sustainable development in a broad range of human activities including: agriculture, fisheries and forestry; human, animal and plant health; pharmaceutical, biochemical and food industries; and waste management, bioremediation and a range of environmental conservation endeavors.

Agriculture remains a key sector of the economies of most developing countries. Agricultural development is in all cases a critical factor for the economic development of these countries.

In India Doordarshan telecasts various programs to support socio-economic development activities of the country. Agricultural program, programs for rural development, family welfare, adult education, women, children, youth, public awareness, science and technology are the important programs for the socio-economic development of the country. Satellite communication at the global level has great relevance for distance education and training. Our options for learning and teaching at the individual, community and societal level have greatly increased.

**DISTANCE LEARNING**

The concept of the world as a global village has evolved due to the development of communication technology. The information boundaries between areas and regions have been eliminated. People
are able to have long-distance communication and information exchange. The convenience of communication brought by the technology is applied to education as well. The main purpose of distance education is to provide people access to education, eliminating the limitations of distance and boundaries. The use of the videoconferencing technologies, allows distance education to have two way communications so that students are able to interact with instructors.

The application of satellite communications offers numerous possibilities for distance education and improves its quality and efficiency. Thus broadcasting plays a vital role in the upliftment of the society by educating and creating a well informed, educative society. Most of the countries have realized the importance of broadcasting for development through education and they have educative programs and an education channel exclusively devoted to education. The relevance of distance education has been realized by nations the world over.

PUBLIC SERVICE BROADCASTING

Growth in the number of private broadcasters, satellite and cable technology and digital television has promoted ownership concentration and globalization with adverse implications for diversity and quality national programming. Public service broadcasting is required in the world today. Public service broadcasting which may be distinguished from the State-controlled broadcasters that still exist in many countries, can help to maintain diversity in light of these developments and play an important role in fulfilling the public's right to know.
“Public broadcasters involved in promoting program production at the local and national level, help ensure that viewers can access quality news programs that include coverage of local, national and international events. They play an important role in promoting program production at the local and national level.”

Several nations used Public Service Broadcasting with the commitment to operating radio and television services in the public good. Public service broadcasting worldwide includes the US Public Broadcasting Service, Canadian Broadcasting Corporation, Australian Broadcasting Corporation, Doordarshan India besides the British Broadcasting Corporation.

Public service broadcasters promote diversity and pluralism in a number of ways. Because they are not driven by market pressures, they can produce programs which cater to a wide variety of tastes and groups. They play an important role in promoting program production at the local and national level.

STUDY ON SATELLITE EDUCATIONAL COMMUNICATION

The developments in space communication with the relay of TV signals across the Atlantic in 1962 using TELSTAR, have enabled mankind to establish human connectivity all over the world. Most of the developed and developing nations in the world including the Asian countries are using satellite communication by leasing transponders from international systems like INMARSAT, INTELSAT, INTERSPUTNIK and by establishing regional systems like ARABSAT. Asian countries like India (INSAT), China (CHINASAT), Japan (JCSAT), Indonesia (PALAPA), Thailand (THAICOM), Malaysia
(MEASAT) and Australia (AUSSAT) have their own communication systems for telecommunication and broadcasting services.

Many of the countries are utilizing this space technology for imparting education for solving their national problems and thereby upliftment of the society in their respective countries. India realizes the importance of using the satellite medium for imparting education in science and technology, in health, hygiene, family planning and better agricultural practices. Satellite communication technologies have exhibited their capabilities for providing services related to education, Tele-medicine, Tele-education, healthcare besides information on planning and development.

An attempt has been made to incorporate the Broadcast media of the developed and developing nations. The media scene in Europe, USA and Asia differs from nation to nation. Each nation’s broadcast system is governed by its political social and economic factors.

In the Asian region countries like China, Pakistan, Bangladesh exercise control on broadcasting by putting restrictions on freedom of the media. In the Middle East government media ownership means that the people have less of a voice and less of opportunity to voice their opinions. In Sri-Lanka freedom of expression is provided in the constitution but political uncertainty led to a worsening condition of the media. Despite this in Asian countries one finds that besides government control over broadcast reception there is global expansion of satellite broadcasting and a trend towards broadcast expansion to other countries. Thus one finds that the broadcast
systems are being utilized for state run propaganda as well as for educating the masses via “teacher in the sky”.

Essential components in the broadcasting systems of the world are cable, satellite and digital technologies. India’s media is the freest in South Asia and Japan too has a free media and lays emphasis on education through the University of Air. Broadcasting in India is used to inform, educate and entertain via the electronic media.

Broadcasting in the European Union aims to establish a single European market in Television called Television without frontiers. Thus promoting European integration. In UK the media are free and independent from government interference. Emphasis is also laid on distance education via the Open University which contracts with the BBC for the production of educative programs. Broadcasting in USA is generally free though the US Federal Communications commission is for regulating the broadcasting. Broadcasting networks are barred from buying other networks. In Canada each broadcaster is responsible for its own programs and a high standard of programming is expected.

Almost each country of the world is laying emphasis on education through its broadcasting via the different satellites used by them. The Concept of broadcasting is changing continuously and Countries are constantly on the lookout for improving their broadcast systems. Nations with their broadcasting are transcending boundaries giving rise to the concept of the Global village and are having a great impact in their own countries as well as other nations. With the advent of new technologies changes are taking place in the broadcasting industry thereby leading to numerous changes and
innovation within the broadcast systems of the world. Consequently
the need for each country to have its own comprehensive Broadcast
Policy.

The broadcasting industry is changing dramatically due to new
distribution technologies such as Direct to home satellite (DTH)
services. Thus each country is evolving and improving its broadcast
system leading to a changed broadcasting scenario.

The developed and the developing countries have witnessed
revolutionary changes in their broadcasting systems during the last
two decades. Satellite, cable and digital technologies have played a
important role in these changes, but the main force for bringing about
change has been Deregulation and Commercialization of the
airwaves. A new competitive and commercial environment has come
into existence.

The proposed study is on the Satellite Educational
Communication with emphasis on understanding and comparing the
World Broadcast Systems with specific reference to India. The study
discusses the satellites and broadcast systems used for education
and the policies adopted. The aim of the study is to obtain information
about the broadcast systems in Europe, Asia and the United States
with the purpose of studying the status of their educational
broadcasting. To compare and analyze them and come to a
conclusion regarding the framework of a broadcast policy.

The study, being descriptive research covers issues that need
attention, in view of the developments taking place in the broadcast
systems of Europe, USA and Asia due to communication satellites.
Therefore the most developed nations and developing nations in the
Asian region are selected and surveyed. The advent of communication satellites have brought about a change in the broadcasting scenario in many of the Asian countries. Consequently broadcasters are forced to reassess their role in a new environment. Education is essential as it is the key to equipping the workforce with the skills needed to develop national economies.

In the light of these developments it would be interesting to note the characteristics of the broadcasting systems in the Asian region, Europe and United States of America with specific emphasis on the educational aspects.

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