

SCIENCE COMMUNICATION IN SOUTH ASIA : CHALLENGES AND PROSPECTS

Manoj Patariya

National Council for Science & Technology Communication

New Mehrauli Road, New Delhi-110016, India

Phone : +91-11-26537976, Fax : 26960207, E-mail : manojpatariya@yahoo.com

Abstract

SAARC (South Asian Association for Regional Cooperation) countries live in various layers, such as social, cultural, political, religious, scientific, economical, and natural. The bilateral and multilateral sharing, exchange, interaction and communication between these layers can mark a turning point of the process of overall development of the region and role of public communication of science and technology could be crucial and vital in this regard. Though, there exist a variety of programmes and activities for taking science to masses and inculcating a scientific bent of mind into them, generally, it was observed that all these layers are working in isolation and there is hardly any interaction. The present study discovers a range of modes and means of science communication prevalent in these countries and tries to identify some common threads amongst them to make them more interactive and communicative to each other so that they can also share the power of scientific knowledge and scientific wisdom. It emerged that science communication through various media, be it print, broadcast, digital, folk or interactive in developing countries, especially in SAARC region, i.e., Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri-Lanka deserves much more serious efforts to be able to enhance their abysmally low level of scientific literacy, eradicate superstitions, and achieve a baseline public understanding of science. It is the high time to draw advantages from the programmes like Sixth Framework of the European Union especially meant for scientific cooperation (including science communication) between EU and developing countries. A close interaction and communication between these layers would make them more responsive to each other as well as paving the way to develop better understanding and cooperation leading to sustainable development.

Keywords: SAARC Region, Science Communication, Regional Cooperation, Science Literacy.

Introduction

Indian sub-continent and SAARC region is blessed with a treasure of its natural resources, traditional knowledge, scientific and cultural heritage from the time immemorial. The modern age of globalization is witnessing a fast exchange of knowledge and information across the world, which has poised the essentiality for exchange of scientific knowledge and wisdom not only within the nations but also beyond the territorial boundaries. This cross-border culture of sharing scientific information and developing cooperation for the activities concerning Public Communication of Science & Technology (PCST) has yet to take shape in SAARC region, though there emerged a few potential indicators that clearly confirm the progressive trend of enhanced understanding, desire and efforts towards developing the region as a scientifically informed society. It would pave the way for enhanced mutual cooperation at bilateral as well as multilateral level and benefiting from the each other's experiences in the area of PCST.

A detailed study of literature, visits to various media and S&T organizations and interviews with pioneering science communicators have revealed a variety of science communication and popularization activities in the region ranging from popular science writing and publications to street plays and planetariums. However, one can easily observe author's bias in this paper as India emerged as home of a broad range and variety of science communication activities as compared to other SAARC countries, but in order to give a much clear picture it was unavoidable. Another reason for more information about India may be because the author could get limited information about other countries and there is possibility of many more such efforts which might have been omitted in this paper unintentionally. Though, comparatively newer information is being given here on India, as most of the Indian efforts were covered in a paper titled "Emerging Scenario of Science & Technology Journalism in India" presented by the author at 7th PCST Conference, Cape Town, South Africa, December 2002.

Observations

Many scholars believe that India's approach to the public understanding of science has been more relevant to the needs of neighbouring countries as there are many customary, traditional and cultural similarities. Though, India and Pakistan approach science communication with different objectives. Pakistan has adopted the much discussed "deficit model" of public communication of science and technology, which focuses on helping people to acquire more knowledge of modern S&T developments. Most of the science popularization programmes in Pakistan are similar to those of developed countries, such as science museums, planetariums, and mobile exhibitions, etc., targeting mainly the literate audience. Whereas, India has adopted a more indigenous approach incorporating "participatory model" along with the western approach which suits to our needs. A planetarium may be useful in the European countries where the climate is generally cloudy, but in India, on the other hand, we have clear sky during nights for almost entire year, except a few rainy days. Therefore, children are encouraged to build their own telescopes, while they also learn as how to grind a mirror for making a telescope thereby promoting hands-on-activities in an innovative manner.

Coping with Fundamental and Superstitious Miss-beliefs : The problem of communicating science in SAARC countries is mainly with strong religious faiths of the people in general. Science communicators in these countries generally avoid raising issues they believe may bring them into conflict with religious beliefs. For example, on the event of so called milk miracle (idols of gods and goddess drinking milk) in 1995, the author was authorized by the Department of Science & Technology to investigate the hoax and report it back to the media. Then author investigated the phenomenon besides a team of scientists and reported the scientific explanation of the event on TV and issued a press release. The show was declined as a result, but the author had received a number of threats from various fundamentalists.

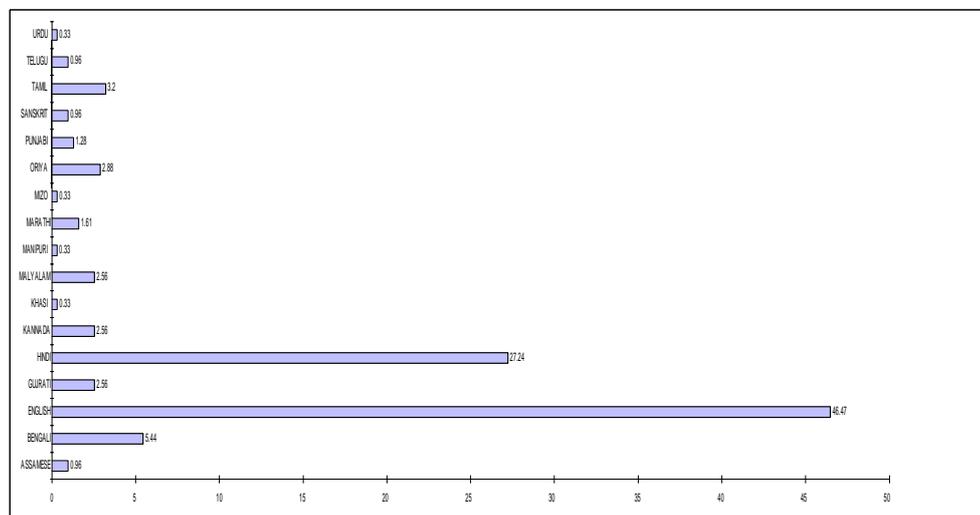
It is also true in Pakistan, Bangladesh and Maldives, being Muslim dominated societies, where human evolution is rarely discussed in public. Surprisingly, in Pakistan, a very interesting project was proposed. There was a proposal to capture "evil spirits (Jinn)" with the help of "magic lamp" or through some other religious means to solve the energy crisis of the country. A PTV programme executive while covering the issue of cloning had to take extra care that the network may not be misunderstood to be promoting the idea of cloning.

Scientific explanation of so called miracles is a most popular and successful programme in India. Some 150 so called miracles prevalent in the country have been collected and scientifically explained to the people in far flung areas through groups of trained volunteers resulting into eradication of miss-beliefs amongst masses. Sri-Lanka, as a contrast, has a programme for finding scientific reasoning of prevalent customs, beliefs and traditions and maintaining and restoring them.

It has been a common belief that science popularization movement left behind in developing countries, but the present study clearly indicates that the developing world is now taking up public awareness of science in a big way and has started practical measures needed to address this and obviously India is considered a leader with her basket full of science communication activities and programmes that are well planned and orchestrated. Though, it may take longer time and efforts to minimize centuries old miss-beliefs and superstitions and achieve a baseline science for all.

Science Journalism and Role of Mass Media : Science communication in Pakistan and Bangladesh is the continuation of the process which began before Pakistan's partition from India in 1947 and Bangladesh's partition from Pakistan in 1972. The first popular science magazine in Urdu was Sa'ins (Science) started in 1928 by Anjuman Taraqqi e Urdu in Delhi. It was discontinued in 1946 and resumed publication further in 1952 from Karachi, but by 1954 it ceased to exist. The Scientific Society of Pakistan launched Jadeed Sa'ins (Modern Science), which continued till 1998. The Pakistan Council for Scientific and Industrial Research launched Karwan e Sa'ins (Science Caravan), edited by Azmat Ali Khan, in 1964. The council also launched two other popular science magazines, Science Chronicle (English) and Vigyan Prakrati (Bangla), published from Dhaka, then East Pakistan, now Bangladesh). Other popular science magazines in Pakistan included bimonthly Sa'ins Bachchon Kay leay (Science for Children), which was published from 1972 to 1991, monthly Amali Sa'ins (Practical Science), 1971, Sa'ins Digest (Science Digest), 1981-2001, monthly Talib e Ilm (The Student), 1985-1995 (renamed

Sa'ins Magazine in 1987 and became weekly in 1988, but soon resumed as monthly), Dunya e Sa'ins (Science World), 1988-1991, Global Sa'ins (Global Science), 1998-till date, with a circulation of 65,000; and Urdu Sa'ins Magazine, quarterly, 2002-till date. The country sees regular launches and closure of science magazines after a short existence with a few exceptions.



Popular Science Magazines in Regional Languages

Bangladesh Council of Scientific & Industrial Research (BCSIR) publishes a quarterly news bulletin titled “Sangbad Parikrama”, containing news on social, scientific and technological events, reports of meeting, seminar, symposium, workshop, innovation, processes, etc., are circulated to news media, government agencies, radio, television, and individuals. Pakistan Council of Scientific & Industrial Research (PCSIR) since its inception in 1955 has been publishing “Pakistan Journal of Scientific and Industrial Research”. In 1966 East Regional Laboratories, Dhaka started publishing “Scientific Research”, a quarterly research journal from Dhaka. Of late, after independent Bangladesh, the journal was titled as “Bangladesh Journal of Scientific & Industrial Research”. In order to promote public understanding of science and technology among common man, two periodicals “Purogami Biggan” and “Bigganer Joyjatra” are being published in Bangla since early 1960s.

The problems understood by science communicators are: lack of government support, both financial and policy-related as the public communication of science is treated as non-developmental; science remains merely a pedagogical affair belonging to the classroom; less support to address a wider audience; industry avoids advertising in science magazines; almost no academic courses available on science journalism/communication; no financial support to popular science magazines by the government; and scientists do not take science popularization seriously. Although recently established National Commission on Biotechnology includes enhancing public understanding of biotechnology and Pakistan Science Foundation is bestowed with the responsibility of science popularization in the country. This situation contrasts with that of India, where the government encourages popular science journals by providing grants.

The situation is however in other SAARC countries like Nepal needs to be improved. They continue to treat science with fear, without even realizing the reason for it, as they equated it with disaster. The first ever Science Popularization Project (SPP) was established in Nepal in 1985 by a group of science enthusiasts, with the aim to turn ordinary people into scientifically literate. The project also paved the way to introduce science in the existing mass media such as newspapers, radio and television. A fortnightly feature service was continued under the project for over five years, two training workshops on science journalism were organized in 1986 but with no headway. Out of some 2700 registered newspapers, there is almost no full time employed science communicator. The broadcast media also suffer the same perils. In general, science is seen as a very difficult, complicated, boring and very dry subject by and large across the world so as in SAARC region.

Science communication and science journalism may be a passion for those who enjoy and practice it with self driven enthusiasm but for the editors and publishers what matters is sensationalism because that is what sells. For example, a marked interest shown by ordinary public in defence science and technology; media tend to devote much space to nuclear issues. Editions of Pakistan's monthly Urdu magazine "Global Science" with focus on defence or nuclear matters outsell those on other topics. The challenge lies with making science news more interesting and palatable to suit street language comprehensible to lay public.

Recognizing Outstanding Efforts in Science Communication : Professor Perves Amirali Hoodbhoy, a nuclear physicist from Pakistan, has been awarded with the UNESCO's Kalinga Prize for popularization of science for the year 2003. The recipient is also awarded the Kalinga Chair, introduced by the Government of India in 2001 to mark the 50th anniversary of the Kalinga Prize. As an awardee of the Kalinga Chair, Prof. Hoodbhoy traveled to India for a period of four weeks as a guest of the Government of India and delivered popular science lectures at different places. The Kalinga Prize, an international recognition in the area of public interpretation of science, was established in 1951 with a fund given to UNESCO by Mr. Biju Patnayak, former Chief Minister of Orissa, an eastern province of India. Since its inception, four Indians and one Pakistani in the region have been awarded Kalinga Prize - Jagjit Singh (1963), Narender K. Sehgal (1991, jointly with Radu Iftimovici of Romania), Jayant V. Narlikar (1996, jointly with Jiri Grygar of Czech Republic), Dorairajan Balasubramanian (1997), and Perves Amirali Hoodbhoy (2003). The author has received an international award for advancement of science communication in the region by Centre for Global Studies, USA (2003). Arthur C. Clark, an acclaimed science fiction writer, has won a number of awards and recognitions for his mammoth work.

India offers a number of awards, recognitions and fellowships at national level to honour and encourage talented science communicators and science journalists through National Council for Science & Technology Communication, Indian National Science Academy, Indian Science Congress Association and Indian Science Writers' Association. In addition, some provinces have their own awards for such efforts. No information was found about such awards from other SAARC countries.

Human Resource Development : Science communication or science journalism is perhaps a well-established subject of academics in many developed countries, but in several developing countries it is still an alien and SAARC region is no exception but India. India has a well planned training programme for human resource development and training in the area of science communication and science journalism that is being successfully implemented since the beginning of the 1990s. The programme offers courses at 5 levels suitable to varies target groups depending upon their qualifications and requirements : i) Short term courses, 1-2 weeks; ii) Medium term courses, 1-6 months; iii) Long term courses leading to degree, diploma, post graduation, 1-2 years; iv) Special/compulsory/optional paper as part of postgraduate courses on journalism and mass communication; and v) Correspondence courses, 1 year. There is hardly any information of such courses in other SAARC countries. In Nepal, attempts to establish a fully-fledged science journalism course was made but with no success as yet.

Here comes the role of international organizations such as International Network on Public Communication of Science & Technology (PCST Network), European Union of Science Journalists' Associations (EUSJA), World Federation of Science Journalists (WFSJ), United Nations Educational Scientific and Cultural Organization (UNESCO), South Asia Association for Regional Cooperation (SAARC), IDRC, DIFD, Wellcome Group, US-NSF, Science and Development Network (SciDevNet) and 6th Framework Programme of European Commission on S&T Cooperation with Developing Countries to organize and support training programmes for the region in the region on various aspects of science communication and science journalism suitable to our needs. The western training modules may not work in totality and have to be indigenized sufficiently within the social and cultural milieu of the region and India's experience could be an advantage in this direction. Simultaneously, opportunities may be created to offer short term/ long term training for potential science communicators and science journalists from developing countries to train abroad and scholarships/ fellowships be introduced for formal training enabling them to get acquainted with the relevant knowledge and skill; who would eventually contribute to the quality and quantity of this profession in their native country. The SAARC Secretariat in association with Pakistan Science Foundation had organized a workshop for training the trainers in science popularization involving science communicators from members countries in 1998 and it was resolved that organization of such events would continue but there is no progress since then.

Another training workshop on science communication for Southeast Asia and South Asia was organized in 2005 by a network of scientists of LOICZ (www.loicz.org) addressing key issues of coastal change and coastal use including reclamation and urbanization. The training workshop on effective science communication was to help change societal paradigms and to make science to be more relevant in day-to-day public affairs. Through the network of researchers and newly trained science communicators in the region, the scientific results can be disseminated more effectively to scientists, resource managers, community groups, environmentalists and broader audiences at various levels in the region. Sri Lanka Environmental Journalists Forum (SLEJF) is a network of environmental journalists in Sri Lanka, which offers media training and a number of publications in English, Sinhalese and Tamil including handbooks and guides to environmental reporting. COSTED has organized several training workshops on popular science writing and science journalism. As part of its capacity-building role in science journalism, SciDev.Net hosts occasional science journalism workshops and training courses in the region. There is also an e-guide to science communication available on the site that contains practical advice, opinion and analysis and regional contacts for South Asia science journalists and communicators.

Generally, scientists and journalists are expected to write or communicate science to masses with an assumption that scientist knows science and journalist knows communication. There is no doubt about it. But unexpectedly, a scientist prefers to give much attention to his research work and write research papers with a “very few” exceptions who prefer to write science for popular consumption. Likewise, a mainstream journalist generally prefers to report some scoop or sensational story with a “very few” exceptions who prefer to write on science. And most of us start blaming both of them for not complying with our expectations. Here comes a science communicator into picture who could be trained in a way to work between both of them - between science and media. He or she could be a scientist interested in communication or a journalist interested in science or a science enthusiast, be it a teacher, a student, a bank official or a doctor or any one and every one who has got an aptitude towards science and its communication to masses. This lot of science enthusiasts could be trained for the purpose and let us stop blaming scientists and journalists for not supporting science communication. If they come they are welcome! Though, we must continue motivating them for taking up science communication partly.

Science Communication Research : Research and development is the backbone of any discipline and is must for its advancement. A variety of research projects have been conducted in India, such as, science coverage in print media (Hindi and English, 1989), job potential for science communication postgraduates (1990), public understanding of science at Sangam (1995, 2001, 2005), impediments to scientific temper (1991), minimum science for all (1990), and science coverage in print and broadcast media (Gujrati, 1998), etc. A half-yearly international research journal titled “Indian Journal of Science Communication (IJSC)” is being brought out since 2001 carrying research findings on various aspects of science communication from all over the world. The journal commissions short term research projects which are capable of developing a research paper worth publishing in the journal. Besides these efforts, doctoral and postdoctoral research in science communication has also been started in some universities in India. The idea is to make science communication process more effective and competitive. There is hardly any report of science communication research from other member countries.

Networking Science Communication : Networking science communication in the region is whose cup of tea any way? There is an emerging need for networking of organizations and individuals interested in science communication in the region to further the cause of science communication, may be at intergovernmental or voluntary level. There are proposals to form an Indo-European Science Communication Forum and/or South Asian Science Communication Forum to foster the science communication activities in the region and have joint programmes involving experts, journalists and scholars from member countries. The author wishes to reinforce the idea of establishing an international institution responsible for multiple objectives of ranging from training, research and academics to publications and networking of science communication software, hardware and human-ware and India has started spade work towards that. Incidentally, India, Pakistan, Nepal and Sri-Lanka reported to have their respective science/ environment writers’/ journalists’ associations that could be a great resource for regional networking of like minded people thereby preparing the land for convincing and influencing the governments, media and scientists to take necessary measures for the advancement of science communication that is vital for not only academic assimilation but also for overall development and a logical attitude. A manual or handbook for science communicators could also be published in English and be translated in regional languages.

Science Communication Campaigns : A variety of science campaigns have been employed over the years in the region. Beginning with Bharat Jan Vigyan Jatha (BJVJ-1987) in India, some countries had different types of science campaigns to reach to the masses with varied magnitude in terms of reach and efficacy. Science communication is a major activity of Royal Nepal Academy of Science & Technology (RONAST), which has been promoting public understanding of science and technology in Nepal. It organizes various promotional activities such as science exhibition, science quiz and Olympiads, essay competitions and science teachers' workshops since its inception in 1982. It also encourages schools to take initiative in organizing such programs, especially in rural areas. The campaign aimed at inculcating scientific temperament and growing scientific culture has covered direct participation of over 30 districts, besides Katmandu valley. The other objectives include: to increase public awareness of science and technology in their daily life; enabling schools to develop simple science kits and demonstrate scientific phenomenon using locally available materials. Recently, science popularization activities were organized as part of Science Fairs, which is generally tied up with local cultural and sports events to attract school children and general public at large. The activities included: Science exhibition, quiz, oratorical contest, essay competition, science teachers' workshop, lecture, and public interaction. The Bangladesh Council of Scientific & Industrial Research (BCSIR) has a public relations section from the beginning. The activities included: social relation of scientists with the public, government, other organizations, foreign countries, and UN bodies, and publication of booklets, leaflet on various scientific discoveries and innovations.



Districts covered by science fair activities since 1982.

Other Outreach Programmes : India has a number of outreach programmes for different target groups from teachers and students to rural and tribal folks and those who are illiterate or neo-literate, such as science communication through folk forms, digital media and hands on activities like popularization of HAM Radio, origami and astronomy. Bangladesh also has programmes for popularizing HAM Radio and astronomy. The National Science Foundation (NSF) of Sri Lanka has its own way to popularize science among people with a bearing on social progress and national development. Its programmes are aimed at: creating knowledge based society that understands basics of current science and technology and its effective utilization in daily activities, and understanding science and technology behind various traditional beliefs, customs and practices which may lead to renew or reinforce such traditions, as a contrast to India's programme against superstitions and miss-beliefs. A wide gap between scientific community and society needs to be bridged. Accordingly, public understanding of science programme has been initiated under the theme Science for all with the objective of making people scientifically literate who can appreciate the value of method of science. The NSF has various activities to its credit: NSF science magazine on TV, publication of Vidurava science magazine, registration of school science societies, training of communication skills to scientists, science writers and media persons, science centres for general public, publication of science book series, workshops on scientific writing, celebrating World Science Day, and production of interactive CDs.

Discussion and Analysis

In developing countries, especially in SAARC region, modern science and technology seem to have potential for addressing the pressing needs of improved nutrition, potable drinking water, public health, safety, and shelter, it also emerged in a two days workshop "Achieving public understanding of research in developing countries" held in Cape Town, South Africa, in December 2000. People in general inquisitive of latest scientific concepts and technological developments, but what we lack is its popular,

attractive, lucid and catchy presentation to the non-experts. A host of activities and programmes has been observed which are available through government, non-government; voluntary, private, foreign, multinational and international sectors in the region. Though, it requires much more concerted efforts to serve the regional populace better in terms of science communication. The major competitors of science communication in mass media people believe are: political news, crime news, sports news, business news and now religious and superstitious programmes on TV channels, whereas science always remains in backseat getting almost negligible attention. This situation can be changed by way of making our products (print features, radio/TV programmes and other science communication activities) more competitive and sellable as compared to these 5 obvious rivals. Nobody relishes a science story unless it is interwoven with the journalistic fabric of cuts and curls, packed with startling and authentic facts, flavoured with spicy examples and presented with vibrant dynamism. Therefore, we must stop blaming these so called most sought after subjects in the media and start making our science communication stuff more competitive and presentable; here lies the real challenge before the science communicators that we must accept.

The focus in this field is often on three kinds of science literacy: practical, civic, and cultural. In the developed world, debates about topics such as nuclear power or genetically modified foods are common and countries in SAARC region need to develop the mechanism for having such public debates on scientific subjects involving people's participation and enabling them make rational decisions especially when it comes to scientific issues confronting their life. Developed-world scientists tend to take it for granted that science is a fundamental part of modern culture as is music or art, but as a contrast science still remains an alien subject for common man in developing world so as in SAARC region. Even awareness of basic issues like providing clean drinking water, health and hygiene, and conservation of energy could be the priority areas for the region.

Nelson Mandela, President of South Africa once said that it is not the AIDS that kills but poverty. Similarly, Anil Agrawal, a renowned environmentalist in India, said that it is not the earthquake that kills but buildings. The message is clear, more awareness, less risk. It may be reinforced that there is a continuing need to evaluate the efficacy of particular activities and recognize "best practices" to be adopted and used in particular regional contexts to overcome social and regional inequalities. Apart from modern scientific knowledge, the region possesses centuries old proven indigenous knowledge systems which cannot be avoided while planning and implementing science communication programmes in the region. It is with this objective, India's National Institute of Science Communication & Information Resources (NISCAIR) has developed and maintaining a Traditional Knowledge Digital Library (TKDL), which has been proved vital in protecting Indian IPR in case of cancellation of US patents of the remedial use of turmeric and basmati rice.

Strategies/ Recommendations

Based upon the observations and analysis of the data available through various sources on the subject, the following strategies and recommendations are suggested for better linkages and activities for further development of science communication and popularization in the region :

1. Regional network must be developed for fast exchange of ideas and experience within the region. Besides, a proposed South Asia Science Communication Forum, international organizations like, PCST Network and WFSJ can think of creating their regional networks.
2. Regional languages should be given due importance for science communication at grass root level and scientific information be made available in regional languages.
3. Strengths and best practices of every state in a particular area of science communication may be identified and replicated in other states.
4. Governments should establish or support institutions to train science communicators and science writers/ journalists/ scientists being basic resource for any activity of science communication.
5. Our commitment to the goal of science communication may become a unifying source for all member states as far as science communication is concerned.

6. Some science communication wing may be formed as part of SAARC S&T Committee.
7. Exchange programme may be devised for students, science communicators, scientists and journalists to visit and spend some time in other member states.
8. Regional science communication awards may be instituted to encourage talented science communicators in the region.
9. An annual event, like regional science festival or congress may be planned to be organized by rotation in member countries.
10. Joint regional training workshops on various aspects of science communication/ science writing/ science journalism may be organized on regular intervals. Support from governments of member states and international organizations may be harnessed for the purpose.

Conclusion

The recent agreement for S&T cooperation between some of the countries in the region could be treated as major milestones towards cooperation in PCST as well. A remarkable participation of cross-national scientists, journalists and science communicators in various PCST activities and programmes in the region has been seen in the recent past. Efforts are being made to run India's Vigyan Rail/ Vigyan Mail (Science Train: An S&T Exhibition on Wheels) also in Pakistan and Bangladesh after its overwhelming success in India where it traveled to various destinations during 2004-2005 attracting millions of people. SciDevNet, a UK based science and development web network, has started its South Asia Regional Gateway (www.scidev.net/southasia) incorporating information on science and development subjects of the region, thereby offering stronger science communication. India's Annual National Science Communication Congress and National Children's Science Congress offer forums for participation and exchanging views and experiences of scholars and students interested in PCST. However, it may be the rosy side of the picture and still there are many more miles to go together to achieve the desired level of public understanding of science; the countries in the region have to come more closer for the purpose. This is only a beginning! We may look forward for better cooperation in PCST activities in the SAARC region in the years to come.

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