

Present Scenario of South-East Asian Countries' Newspapers to Cater Local Scientific Issues through the Regional Languages: An Epistemological Case Study

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Abstract: This paper contains the background of the need of the study of growing interest in local scientific issues in regional languages newspapers. Mass communication of scientific issues at local level through regional newspapers is more or less same in the South-east Asian countries, particularly in India, Thailand, Afghanistan and Pakistan. For years, mass communication through regional newspapers had been believed the most important engine for social changes, and hence this study becomes very important. Obviously the questions arise, what about the regional and local newspapers which are published regionally from those countries of South-east Asia? Is there sufficient translator in the media houses who have thorough knowledge of local language and jargons? How far those translated news is correct and not distorted? English language was taken at one hand and Dari for Afghanistan, Bangla for Bangladesh, Hindi for India, Bahasa for Indonesia, Urdu for Pakistan, Thai for Thailand, Mandarin for China, Korean for South and North Korea, Russian for Russia on the other hand. Distortion for translation in regional languages was also studied. Lastly a special survey was done by sending research questions abruptly among 50 citizens of each capital of every country viz. Afghanistan, Bangladesh, India, Indonesia, Pakistan, Thailand, China, Japan, South Korea, North Korea and Russia. It is found that major citizens of South-east Asian countries are not satisfied with science news to read English and they think it better to like it in regional languages.

Key words: Mass communication, South-east Asia, Science news, Science Communication

I. INTRODUCTION

In this research work, it is not the intention only to find the present scenario of science communication in print media of major countries (considered according to the population) of South-east Asia. But this study will help the media professionals and academicians of different regional languages of those multilingual countries and the kind of problems that they are facing in their profession regarding to communicate science and various local scientific issues. Some remedies to improve the prevailing state of affairs have also been suggested. Whatever may be the reason, it is clear that science has no territorial boundaries, and so is true for the science communication activities. As far as coverage of science and technology in mass media is concerned, in developing countries, like India, it will increase in near future significantly, as very fast and rapid developments are taking place.

Various forms for presentation are being used to make science communication more interesting and enjoyable, such as science news, report, article, feature, story, play, poem, interview, discussion, lecture, documentary, docu-drama, scientoon (science + cartoon), satire, etc. Our science communication efforts are aimed at various target groups, such as, common man, children, students, farmers, women, workers or specialists, etc. It is obvious that, generally, when we talk

about science communication, it obviously incorporates science popularization, scientific temper, technological temper and technology communication. Selection of target audience has greatest significance.

However, the physical and technological growth in regional language media has not translated into commensurate growth in terms of content quality, business and remuneration to the people providing content inputs, especially journalists. There are honourable exceptions, but this is the general picture. There are other problems, which are typical to regional language media. Regional Language media are more prone to pressure. Regional political parties, fringe elements, hooligans can and do try to pressurise the local media. At times this impedes its zest and strength to stand for the just and speak the truth fearlessly. The regional language media's dependence on the concerned State Government and Business Houses make it more vulnerable compared to English language media.

II. BACKGROUND

It is true that there is no shortage of scientific information on the web. Witness the way that research finding agencies always use the web to inform the public about everything-from planetary motion and astrophysics to public health. Hence, in principle, anyone using internet connection now has access to more and better scientific coverage than ever before.

But here comes the question and the need of this study. That information on the web can have access only who have strong knowledge of English only and who have internet connection. This percentage is too small. What about the large sector of people who talk in their regional language and don't have access of internet due to money shortage! What about the regional and local newspapers which are published regionally from those countries of South-east Asia? Is there sufficient translator in the media houses who have thorough knowledge of local language and jargons? How far those translated news is correct and not distorted?

In many newspaper of South-east Asia also, circulations have dropped, advertising has dried up and newspapers have been forced to lay off reporters and scale back coverage. A similar slump has hit the broadcast market, with no end in sight. An average citizen is unlikely to search the web for the Higgs boson or the proteasome if he or she doesn't hear about it first on, say, a cable news channel. And as mass media sheds its scientific expertise, science's mass-market presence will become harder to maintain.

The communication of scientific knowledge is integral to science research and essential for its continued survival. The public needs to know more about science and technology. Many researchers have difficulty in talking about their work in a way that people who are not scientists can understand. To solve this problem, society needs people with special bridging skills who can provide a link between S&T and the public, and here comes the question and basic need of science journalism in regional language newspaper in local sector and publication of local scientific issues at regional level.

India has the world's largest newspaper market after China. While news papers are struggling in Europe and USA, in India and China there is a boom. It is interesting to note that the world's three top countries in newspaper circulation are China with 98.70 million copies, India with 88.90 million copies and Japan with 69.10 million. Growth of newspapers is calculated in two ways, one is by circulation and the other is by readership. One copy of a newspaper may be read by several people. If a family subscribes to a newspaper it is likely to be read by four of six members. So if a newspaper has a circulation of one lakh, its readership may be four or five lakhs. A close study of newspaper readership in India shows that there are more readers for language newspapers. This is mainly because English newspapers are confined to cities and towns whereas language newspapers are widely circulated in the rural areas. Hence this study is very much important. Hence the objective of this study is to know the present condition of South-east Asian newspapers to cater regional news at local level.

III. Difference between English and Language Newspaper

- a) English papers are published in one language only i.e. English, whereas language papers are published in different languages.
- b) English papers are mostly concentrated in big cities and major towns. Language papers are circulated all over the country.

- c) English newspapers cater mainly to the well-educated, middle class, upper middle class and higher income groups. Language papers are read by even lower middle class and even those below that.
- d) English dailies have less penetration in the rural public whereas language dailies have more penetration in the rural areas.
- e) English papers follow the British tradition while the language papers have evolved their own style and methods.
- f) More money is generated from advertisements in English papers as they circulate amongst people with better purchasing power. Language papers do not get the same amount of revenue from advertisements.
- g) English papers are more colourful and flamboyant. Language papers adopt a simple style.

IV. Literature Review

A literature survey on the above research subject yielded nothing. The embryonic stage of the science communication profession means there has been very little quality research into science communication and science communicators, but this is changing quite rapidly. There is also very little material or studies that professional science communicators can draw upon to improve and update their skills and techniques for translation. This is because most literature that is useful to professional science communicators is heavily entrenched in other perspectives such as education, engineering, public relations, journalism, and other science and humanity fields. This makes it very difficult for professional science communicators to find valuable information or advice, without reading very widely.

Another study by Moje, Collazo, Carrillo and Marx (2001) examined the discursive demands in an inquiry-based science lesson, and found that although the curriculum provided ample opportunities for students to explore with experiments, many Grade 7 students struggled with the communicative practices of information gathering, dissemination, organization and presentation. This study will look at what science communicators think about jargon, complexity and detail in their science communication. This study also aims to fill in other gaps in the literature about science communicators. It aims to do this by providing an insight and discussion of the perceptions held by current professional science communicators. Also most literature and research relevant to science communicators, provides the information from a science, scientist or third person (the communicator undefined) perspective. This material is useful, but needs to be adequately interpreted for use by professional science communicators. However there are some key texts, guidelines and articles that are beginning to amount to a useful body of knowledge for professional science communicators to draw from.

Achala Gupta and A.K.Sinha, in their study on "*Health Coverage in Mass Media: A Content Analysis*," had come out with the conclusion that, however all different types of media provide information regarding health matters but the political subject was the most preferred area of news, in all types of media. Mekam Maheshwar and Ragunatha D. Rao, carried out a comparison study of English and Telugu, in their study "*A Comparative Analysis of Nutrition Science Coverage by Popular Indian Daily Newspapers*". The study concluded that English Dailies had given more coverage on obesity, beverages, chocolates, whereas Telugu dailies were confined mostly to the traditional foods, promoting consumption of natural foods. English dailies also published more reports on nutrition Science in editorial pages, front pages and as box items to grab readers' attention significantly, than Telugu dailies.

Overall, the literature really lacks research into the techniques science communicators are using to breakdown science and translate it. The literature widely discusses how jargon can be used both appropriately and inappropriately and touches on complexity in communication. However it does not say how science communicators are or should be using it. Hence this study will contribute to the information already available on a science communicators' education by discussing some of the considerations of approaching science communication from a purely science or communication stance.

V. Detailed study of source materials

Countries of Asia under study with Population and Area

	Population (1,000s)	Area (sq. mi.)	Capital City	Language	Population Percentage
Afghanistan	23,738	251,825	Kabul	Pashtu, Dari	0.59
Bangladesh	125,340	56,977	Dacca	Bangla	3.63
India	967,613	1,222,243	New Delhi	Hindi	29.72
Indonesia	209,774	741,052	Jakarta	Bahasa	5.84
Pakistan	132,185	307,374	Islamabad	Urdu	4.39
Thailand	59,451	198,115	Bangkok	Thai	1.51
China (& Tibet)	1,221,592	3,696,100	Beijing	Mandarin	31.35
Japan	125,717	145,850	Tokyo	Japanese	2.81
Korea, North	24,317	47,399	Pyongyang	Korean	0.57
Korea, South	45,949	38,375	Seoul	Korean	1.12
Russia	147,987	6,592,800	Moscow	Russian	3.19

5.1 Major regional languages of the countries under study

5.1.1 Afghanistan

Present Scenario

Afghanistan is a multilingual country in which two languages – Dari and Pashto – are both official and most widely spoken. Dari is the official name of the Persian language in Afghanistan. It is often referred to as the Afghan Persian. Minor languages may include Ashkunu, Kamkata-viri, Vasi-vari, Tregami and Kalasha-ala, Pamiri (Shughni, Munji, Ishkashimi and Wakhi), Brahui, Qizilbash, Aimaq, and Pashai and Kyrgyz. Linguist Harald Haarmann believes that Afghanistan is home to more than 40 minor languages, with around 200 different dialects.

According to a 2006 opinion poll survey involving 6,226 randomly selected Afghan citizens by the Asia Foundation, Dari was the first language of 49%, with an additional 37% stating the ability to speak Dari as a second language; 42% were able to read Dari. Second, Pashto was the first language of 40% of the polled people, while an additional 28% spoke it as a second language; 33% were able to read Pashto. Uzbek was the first language of 9% and a second language for 6%. Turkmen was the first language of 2% and a second language for 3%. English was spoken by 8% and Urdu by 7%. A later study found that Dari was, by a wide margin, the most widely spoken language in urban

Afghanistan, with as many as 93% of Afghans claiming to speak it, but only 75% of rural Afghans claiming the same.

Conclusion

Though Afghanistan is a multi-lingual country, mainly 3 languages viz. Dari, Pashto and English dominate the country. Other languages have minor effect.

5.1.2 Bangladesh

Present Scenario

The official and *de facto* national language of Bangladesh is Bangla. It serves as the *lingua franca* of the nation, with 98% of Bangladeshis fluent in Standard Bangla or Bangla dialects as their native language. Other regional languages are- Arakanese, Assamese, Bishnupriya Manipuri, Chakma, Hajong, Tangchangya, Oraon Sadri, Khasi, Koda, Mundari, Pnar, Santali, War-Jaintia, Kurukh, Sauria Paharia, A'Tong, Chak, Chin, Asho, Bawm, Falam, Haka, Khumi, Koch, Garo, Megam, Meitei Manipuri, Mizo, Mru, Pangkhua, Kok Borok, Riang, Tippera and Uoi.

Conclusion

English in Bangladesh, though having no official status, is prevalent across government, law, business, media and education. Arabic is also used widely as an integral part of religious instruction in daily life. The indigenous people of northern and southeastern Bangladesh speak a variety of native languages, but Bengali language plays significant role in that country.

5.1.3 India

Present Scenario

The Constitution of India does not give any language the status of national language. According to Census of India of 2001, India has 122 major languages and 1599 other languages. However, figures from other sources vary, primarily due to differences in definition of the terms "language" and "dialect". The 2001 Census recorded 30 languages which were spoken by more than a million native speakers and 122 which were spoken by more than 10,000 people.

Article 343 of the Indian constitution states that the official language of the Union shall be Hindi in Devanagari script. English has the status of a "subsidiary official language". The Eighth Schedule of the Indian Constitution lists 22 languages, which have been referred to as *scheduled* languages and given recognition, status and official encouragement. In addition, the Government of India has awarded the distinction of *classical language* to Tamil, Sanskrit, Kannada, Telugu, Malayalam and Odia.

Languages spoken in India belong to several language families, the major ones being the Indo-Aryan languages spoken by 75% of Indians and the Dravidian languages spoken by 20% of Indians. Other languages belong to the Austro-asiatic, Sino-Tibetan, Tai-Kadai and a few other minor language families and isolates.

Here is the chart below to show the major speaking languages in the country--.

First, Second, and Third languages by number of speakers in India (Latest Published Census)				
Language	First language speakers (% of total population)	Second language speakers	Third language speakers	Total speakers (% of total population)
Hindi	422,048,642 (41.03%)	98,207,180	31,160,696	551,416,518 (53.60%)
English	226,449 (0.02%)	86,125,221	38,993,066	125,344,736 (12.18%)
Bengali	83,369,769 (8.10%)	6,637,222	1,108,088	91,115,079 (8.86%)
Telugu	74,002,856 (7.19%)	9,723,626	1,266,019	84,992,501 (8.26%)
Marathi	71,936,894 (6.99%)	9,546,414	2,701,498	84,184,806 (8.18%)
Tamil	60,793,814 (5.91%)	4,992,253	956,335	66,742,402 (6.49%)
Urdu	51,536,111 (5.01%)	6,535,489	1,007,912	59,079,512 (5.74%)
Kannada	37,924,011 (3.69%)	11,455,287	1,396,428	50,775,726 (4.94%)
Gujarati	46,091,617 (4.48%)	3,476,355	703,989	50,271,961 (4.89%)
Odia	33,017,446 (3.21%)	3,272,151	319,525	36,609,122 (3.56%)
Malayalam	33,066,392 (3.21%)	499,188	195,885	33,761,465 (3.28%)
Sanskrit	14,135 (<0.01%)	1,234,931	3,742,223	4,991,289 (0.49%)

Conclusion

Practical problems

India has several languages in use; choosing any single language as an official language presents problems to all those whose "mother tongue" is different. However, all the boards of education across India recognise the need for training people to one common language. There are complaints that in North India, non-Hindi speakers have language trouble. Similarly, there are complaints that North Indians have to undergo difficulties on account of language when travelling to South India. It is common to hear of incidents that result due to friction between those who strongly believe in the chosen official language, and those who follow the thought that the chosen language(s) do not take into account everyone's preferences. Local official language commissions have been established and various steps are being taken in a direction to reduce tensions and friction.

Language conflicts

The Government of India attempts to assuage these conflicts with various campaigns, coordinated by the Central Institute of Indian Languages, Mysore, a branch of the Department of Higher Education, Language Bureau, and the Ministry of Human Resource Development.

5.1.4 Indonesia

Present Scenario

More than 700 living languages are spoken in Indonesia. Most belong to the Austronesian language family, with a few Papuan languages also spoken. The official language is Indonesian (locally known as Bahasa Indonesia), a variant of Malay, which was used in the archipelago, — borrowing heavily from local languages of Indonesia such as Javanese, Sundanese and Minangkabau. The Indonesian language is primarily used in commerce, administration, education and the media, but most Indonesians speak other languages, such as Javanese, as their first language. Most books printed in Indonesia are written in the Indonesian language. Since Indonesia only recognises a single official language, other languages are not recognised either at the national level or the regional level, thus making Javanese the most widely spoken language without official status, and Sundanese the second in the list (excluding Chinese dialects).

Here is the table of major languages of Indonesia.

Language	Number (millions)
Indonesian/Malay	210
Javanese	84.3
Sundanese	34.0
Madurese	13.6
Minangkabau	5.5
Musi (Palembang Malay)	3.9
Manado Malay (Minahasan)	3.8
Bugis	3.5
Banjarese	3.5
Acehnese	3.5
Balinese	3.3
Betawi	2.7
Sasak	2.1
Batak Toba	2.0
Ambonese Malay	1.9
Makassarese	1.6
Batak Dairi	1.2
Batak Simalungun	1.2
Batak Mandailing	1.1

Conclusion

There are 726 languages spoken across the Indonesian archipelago in 2009 (dropped from 742 languages in 2007), the largest multilingual population in the world only after Papua New Guinea. Indonesian Papua, which is adjacent to Papua New Guinea, has the most languages in Indonesia. Based on the latest research, 63 languages are dying (shown in red on the bar chart, subdivided into Moribund and Nearly Extinct, or Dormant), which is defined as "The only fluent users (if any) are older than child-bearing age, so it is too late to restore natural intergenerational transmission through the home."

5.1.5 Pakistan

Present Scenario

Pakistan is a poor, heavily populated country, and the welfare of its people is severely affected by internal political disputes, lack of foreign investment, and ongoing problems with neighboring India. Ethnic groups within the population include Punjabi, Sindhi, Pashtun (Pathan), Baloch, and Muhajir (immigrants from India at the time of partition and their descendants). Although Urdu is the official language of Pakistan, only about 8 percent of the people speak it. Forty-eight percent speak Punjabi and 8 percent speak English, which is considered the lingua franca of Pakistani elite and most government ministries. Other languages include Sindhi (12 percent), Saraiki (a Punjab variant; 10 percent), Pashtu (8 percent), Balochi (3 percent), Hindko (2 percent), Brahui (1 percent), and Burushaski and others (8 percent).

No	Language	Population	Percentage
1	Punjabi	76,367,360	44.17
2	Pashto	26,692,890	15.44
3	Sindhi	24,410,910	14.12
4	Saraiki	18,019,610	10.42
5	Urdu	13,120,540	7.59
6	Balochi	6,204,540	3.59

Conclusion

Pakistan's national language is Urdu, which, along with English, is also the official language. In 2015, the government of Pakistan announced plans to make Urdu the sole official language and abolish English as the second official language. The country is also home to several regional languages, including Punjabi, Pashto, Sindhi, Balochi, Kashmiri, Hindko, Brahui, Shina, Balti, Khowar, Dhatki, Marwari, Wakhi and Burushaski. From among these, four (Punjabi, Pashto, Sindhi, and Balochi) are provincial languages.

5.1.6 Thailand

Present Scenario

Thai is the official language of Thailand, spoken by over 20 million people (2000). Standard Thai is based on the register of the educated classes of Bangkok. In addition to Central Thai, Thailand is home to other related Tai languages. Thailand, and its neighbor Laos, are dominated by languages of the Southwestern Tai family. Karen languages are spoken along the border with Burma; Khmer is spoken near Cambodia and Malay in the south near Malaysia. The Thai hill tribes speak numerous small languages, many Chinese retain varieties of Chinese, and there are half a dozen sign languages. The Ethnologue reports 73 living languages are used in Thailand. The Royal Thai Government's 2011 Country Report to the

Committee Responsible for the International Convention on the Elimination of All Forms of Racial Discrimination, relying mainly on the 2005 Ethno-linguistic Maps of Thailand data, lists 62 languages.

Conclusion

This country is fully dominated by only Thai language and also there are many regional languages used in Thailand. So it is obvious that, local scientific issues are not touched by a large no of people.

5.1.7 Russia

Present Scenario

Russian is a Slavic language of the Indo-European family. The vocabulary (mainly abstract and literary words), principles of word formations, and, to some extent, inflections and literary style of Russian have been also influenced by Church Slavonic, a developed and partly russified form of the South Slavic Old Church Slavonic language used by the Russian Orthodox Church. From the point of view of the spoken language, its closest relatives are Ukrainian, Belarusian, and Rusyn the other three languages in the East Slavic group. There were 259.8 million speakers of Russian in the world: in Russia - 137.5, in the CIS and Baltic countries - 93.7, in Eastern Europe and the Balkans - 12.9, Western Europe - 7.3, Asia - 2.7, Middle East and North Africa - 1.3, Sub-Saharan Africa - 0.1, Latin America - 0.2, USA, Canada, Australia and New Zealand - 4.1. Thus, the Russian language is the 6th largest in the world by number of speakers, after English, Mandarin, Hindi/Urdu, Spanish and Arabic.

In Georgia Russian has no official status, but it's recognized as a minority language under the Framework Convention for the Protection of National Minorities. In Armenia Russian has no official status, but it's recognized as a minority language under the Framework Convention for the Protection of National Minorities. In Tajikistan Russian is the language of inter-ethnic communication under the Constitution of Tajikistan and is permitted in official documentation. In Azerbaijan Russian has no official status, but is a lingua franca of the country. In Kyrgyzstan Russian is an official language per article 5 of the Constitution of Kyrgyzstan. The latest census states that 482,200 people speak Russian as a native language, or 8.99% of the population. In Kazakhstan Russian is not a state language, but according to article 7 of the Constitution of Kazakhstan its usage enjoys equal status to that of the Kazakh language in state and local administration. Russian is also spoken as a second language by a small number of people in Afghanistan.

Conclusion

Though Russian language is the major language of Russia, there are several regional places where the local language plays the dominant role.

5.1.8 South Korea

Present Scenario

Koreans speak Korean, and knowing a few words of this will come in very handy. Unfortunately the language is rather drastically different from any Western language in its grammar, and pronunciation is rather difficult for the English speaker to get right (though not tonal). Depending on which part of the country, different dialects are spoken, though standard Korean, which is based on the Seoul dialect, is understood and spoken by almost everyone. Most notably among the dialects, the Gyeongsang dialect spoken around Busan and Daegu is considered to be rather rough and aggressive compared to standard Korean, and the Jeju dialect spoken on Jeju island is known for being almost incomprehensible to speakers of standard Korean, although the pure Jeju dialect is becoming less common.

Conclusion

Though the major people of the country speak Korean language, there are various parts of the country where various local languages play dominant role.

5.1.9 North Korea

Present Scenario

Korean language is the official language of the Republic of Korea and Democratic People's Republic of Korea, with different official forms used in each nation-state; It is also one of the two official languages in the Yanbian Korean Autonomous Prefecture and Changbai Korean Autonomous County of the People's Republic of China. Approximately 80 million people worldwide speak Korean.

Korean has a few extinct relatives, which together with Korean itself form the Koreanic language family. Despite this, historical and modern linguists classify Korean as a language isolate. The Korean language is agglutinative in its morphology and SOV in its syntax.

Conclusion

Though Korean language is the official language of this country, there are several regional languages that are used at local level.

5.1.10 Japan

Present Scenario

Japanese ranks as one of the world's most important languages with over 126 million speakers. There are approximately 900,000 Japanese residents that speak Korean as their first language; most of these people are also fluent in Japanese. The most widely spoken language in Japan currently is Japanese, which is separated into a large number of dialects with Tokyo dialect considered standard Japanese.

Miyako is a language spoken in the Miyako Islands, located southwest of the island of Okinawa. According to the latest figures, there are approximately 67,000 Japanese residents who speak the Miyako language as either their first or second language. Most of these people are also fluent in Japanese. The number of fluent native speakers is not known; as a consequence of Japanese language policy, reflected in the education system, people below the age of 60 tend to not use the language except in songs and rituals, and the younger generation mostly uses Japanese as their first language.

Yaeyema is a language that can also be heard in small pockets of Japan, mostly used by older citizens in their songs and prayers. Estimates suggest that there are approximately 47,000 native speakers of Yaeyema on the Japanese Islands.

In addition the Japanese language, Ryukyuan languages are spoken in Okinawa and parts of Kagoshima in the Ryukyu Islands. In Hokkaido, there are Ainu languages, which are spoken by the Ainu people, who are the indigenous people of Japan. Vastly different from Japanese, Ainu languages are isolated languages which do not fall under any language family.

Speakers of Korean, Chinese, and Zainichi Korean, which stems from Korean, also reside in Japan. In addition, languages such as Oroch, Evenki, and Nivkh spoken in formerly Japanese controlled southern Karafuto (known as Sakhalin in Russian) are becoming more and more endangered. After the Soviet Union took control of the region, speakers of these languages and their descendants migrated to mainland Japan and still exist but in small numbers.

Conclusion

Except Japanese language, there are various languages that are spoken by the people of this country.

5.1.11 China

Present Scenario

The number of individual languages listed for China is 298. All are living languages. Of these, 274 are indigenous and 24 are non-indigenous. Furthermore, 14 are institutional, 23 are developing, 103 are vigorous, 126 are in trouble, and 32 are dying. The languages of China are the languages that are spoken by China's 56 recognized ethnic groups. There are

as many as 292 living languages in China. The languages most commonly spoken belong to the Sinitic branch of the Sino-Tibetan language family, which contains Mandarin (spoken natively by 70% of the population), and other Chinese varieties: Wu (including Shanghaiese), Yue (including Cantonese and Taishanese), Min (including Hoochew, Hokkien and Teochew), Xiang, Gan, and Hakka. Languages of the Tibeto-Burman branch, including Tibetan, Qiang, Naxi and Yi, are spoken across the Tibetan and Yunnan–Guizhou Plateau. Other ethnic minority languages in southwest China include Zhuang, Thai, Dong and Sui of the Tai-Kadai family, Miao and Yao of the Hmong–Mien family, and Wa of the Austroasiatic family.

Across northeastern and northwestern China, minority ethnic groups speak Altaic languages including Manchu, Mongolian and several Turkic languages: Uyghur, Kazakh, Kyrgyz, Salar and Western Yugur. Korean is spoken natively along the border with North Korea. Sarikoli, the language of Tajiks in western Xinjiang, is an Indo-European language. Taiwanese aborigines, including a small population on the mainland, speak Austronesian languages.

Standard Mandarin, a variety of Mandarin based on the Beijing dialect, is the official national language of China and is used as a lingua franca in the country between people of different linguistic backgrounds.

Conclusion

298 living language in a country! It is obvious that, though Chinese language is the major language in this country, there are various regional languages.

5.2 Major print media of the countries under study

5.2.1 Afghanistan

Present Scenario

Afghanistan is a country located in Central Asia and South Asia. The country is popular in newspaper all over the world. Afghanistan has two official languages Pashto and Dari. Both of these languages are used as first language equally by the residents. That's why the country has newspapers in both Pashto and Dari. The country also has its own English version newspapers. For a country headlining the world we can surely expect a lot of news in the local newspapers also. Afghanistan also has a number of online news portals. The country also has its fair share of magazines. There are lots of weekly and monthly magazines. There are few sports pages in the newspapers as well. In other words a country struck by war but Afghanistan is still maintaining its country newspapers properly. There are few newspapers that is published in Pashto, Dari and English.

Among top 10 largest circulated daily in Afghanistan, 7 daily newspaper are published in English and others in Persian language. Afghanistan Times, Daily Outlook, Afghanistan News, Afghan Online Press etc are English papers whereas Benawa, Daily Afghanistan etc are newspapers published in Parsian Language.

Conclusion

Except newspapers in English and Persian, to some extent, there is no paper in regional languages. Hence scope is too little to communicate science, even it is basic science also, to the grass root level of the country.

5.2.2 Bangladesh

Present Scenario

For the national Daily newspapers published in Bengali- Alokito Bangladesh, Gazipur Tribune, Daily Sangbad Konika, Amader Shomoy (Circulation 1,77,000), Amar Desh (Circulation 2,00,000), Bangladesh Pratidin (Circulation 5,53,000), The Daily Ittefaq (Circulation 194,000), The Daily Jugantor (Circulation 2,21,000), Kaler Kantho (Circulation 2,50,000), Prothom Alo (Circulation 5,00,000), Suprobhat Bangladesh, Daily Destiny, Shokaler Khobor, The Daily Janakantha (Circulation 1,64,000) etc plays significant role. On the other hand, The Bangladesh Today, Dhaka Courier, Dhaka Tribune, The Daily Star, Daily Sun, The Independent etc are newspapers of this country published in English

Conclusion

As the major citizens of this country speak in Bengali and the major newspapers are also published in Bengali, there is no significant problem to translate from English. Also, as the major scientific institutions do their official works in Bengali, no major regional language problem is there. However, this country fully depends on translation, if it is the news of international standard.

5.2.3 India**Present Scenario**

There is a lot of newspaper in India in regional languages and hence regional languages play dominant role in circulation. This is a list of the top 10 newspapers in India by circulation. These figures include both print and digital subscriptions, are compiled by the Audit Bureau of Circulations. The figures include normal print editions, branded print editions (e.g., regional editions or editions tailored for commuters), and digital subscriptions.

Rank	Newspaper	Headquarters	Language	Circulation
1	Dainik Bhaskar	Bhopal	Hindi	3,812,599
2	Dainik Jagran	Kanpur	Hindi	3,632,383
3	Amar Ujala	Noida	Hindi	2,938,173
4	The Times of India	Mumbai	English	2,731,334
5	Hindustan	New Delhi	Hindi	2,399,086
6	Malayala Manorama	Kottayam	Malayalam	2,372,256
7	Eenadu	Hyderabad	Telugu	1,841,276
8	Rajasthan Patrika	Jaipur	Hindi	1,813,756
9	Daily Thanthi	Chennai	Tamil	1,714,743
10	Mathrubhumi	Kozhikode	Malayalam	1,461,881

Conclusion

Science journalism in India needs to be more locally relevant and use local culture. However, it is found that, major science and developmental news comes from only developed countries and from their own country or state. Here comes the question of language barrier across the states. The scientists or science communicator who knows Bengali may not know Telegu, who knows Tamil may do not know Hindi and even English and this is the actual scenario of this whole country. Hence communication of scientific temper in their regional language at local level is really too tough and it will prevail.

5.2.4 Indonesia**Present Scenario**

There are 16 national newspapers of which Jawa Pos (Circulation 4,50,000), Kompas (Circulation 6,00,000), Suara Pembaruan (Circulation 3,50,000), Republika (Circulation 3,25,000), Media Indonesia (Circulation 2,50,000), Koran Tempo (Circulation 2,40,000) etc plays the major role to make public opinion. There are some newspapers which are published in English also.

Conclusion

Education in Indonesia is compulsory for twelve years. Parents can choose between state-run, non sectarian public schools supervised by Ministry of Education and Culture or private or semi-private religious (usually Islamic) schools supervised and financed by the Department of Religious Affairs. The enrolment rate is 94% for primary education (2011), 75% for secondary education, and 27% for tertiary education. The literacy rate is 93% (2011). By 2014, there were 118 state universities in Indonesia. In agriculture, for instance, the people in Indonesia, and also in many other Southeast Asian countries, are famous in paddy cultivation technique namely terasering.

It is said only for the reason that Indonesia, though being the multilingual country in the world, have thorough knowledge of science and technology through mass media and at regional level, local scientific activities also being published.

5.2.5 Pakistan

Present Scenario

Pakistan's press reflects this language diversity. Newspapers that publish in Urdu, the national language of Pakistan, have a broader reach than the English-language papers. According to London's Financial Times, the combined circulation of Pakistan's entire English-language press is no more than 150,000 in a population one hundred times that size. In terms of distribution, the English-language papers seem to be skewed toward the more liberal elite whereas the Urdu press appeals to the masses and includes scandal sheets as well as respected journals, religious papers, and party organs.

Jang is the top daily newspaper with a circulation of 850,000. Nawa-e-Waqt holds second place with 500,000, followed by Pakistan (279,000), Khabrain (232,000), The News (120,000), Dawn (109,000), and Business Recorder (22,000). The All-Pakistan Newspaper Society (APNS) estimated that the total combined circulation figure for daily newspapers and other periodicals was 3.5 million in 1997. Print media included 424 dailies, 718 weeklies, 107 fortnightlies, and 553 monthlies. Deficient literacy rates, urban orientation of the press, and the high price of newspapers are considered primary factors contributing to low circulation rates. The three most influential newspapers in Pakistan are the daily Dawn in English, the daily Jang in Urdu, and the daily Business Recorder in the area of business and finance. The average price of a newspaper varies from Rs 5 to Rs 15.

Conclusion

Due to pressures from national and international organizations, the trend is toward greater press freedom and democracy. Although the government is the press's largest advertiser, privatization of major industries and banks is causing the government to lose its control over the press and is attempting to counter this trend by enforcing new restrictions. On the other hand, many adult literacy centers have been established in recent years; in addition, the People's Open University was opened at Islamabad to provide mass adult education through correspondence and the communications media.

Literacy seems to play a part in the distribution pattern of newspaper. Only 42.7 percent of the Pakistani population (age 15 and over) can read and write. Hence, it is too tough for a country like Pakistan, to give an eye on to build consciousness of local scientific issues through regional language media. On the other hand, the government has considerable leverage over the press through its substantial budget for advertising and public interest campaigns, its control over newsprint, and its ability to enforce regulations.

5.2.6 Thailand

Present Scenario

Thai Rath, claiming a circulation of approximately one million, this is Thailand's most influential newspaper. Prominently features sensationalist stories on crime and accidents. Its political stance is moderately populist. High circulation is due to its stance on populist issues and its acceptance of the public opinion of the general population, in particular, the majority rural market.

Khao Sod . The name translates as "fresh news". Third in circulation among Thai newspapers behind Thai Rath

and Daily News. Founded on 9 April 1991, Khaosod is the youngest newspaper of Matichon Publishing Group, which also publishes two other daily news publications, Matichon Daily and Prachachat Business. Khaosod claims to be more "mass-oriented" and "upcountry-focused" than its sister newspapers. It sells 3,00,000 copies per day. Kom Chad Luek - Claimed a circulation of approximately 8,50,000 .

The most successful among the remaining newspapers were Ban Muang, Matichon, Siam Rath, and Naew Na. The English-language dailies were the Bangkok Post, The Nation, and the Bangkok World, which were popular among the well-educated and influential members of Thai society and were regarded by many as more reliable than the Thai dailies.

Among all English-language dailies, Bangkok Post - Circulation is approximately 75,000. Its major shareholders include the Chirathivat family (owners of Central Group), the South China Morning Post of Hong Kong and GMM Grammy PLC, a local media and entertainment firm. Maintains a conservative editorial line. The Nation - Circulation is in the 60,000-80,000 range. Thailand's so-called "business newspapers" also include substantial coverage of politics and culture. The two largest English newspapers are printed in broadsheet format, although there are several exceptions to this. These other mass-circulation newspapers are often referred to as "tabloids", and are the Phuket Gazette, Pattaya Mail, and Hua Hin Today. With the exception of one newspaper in Chiang Mai, all daily papers are published in Bangkok and distributed to all parts of the country.

Conclusion

As the media world of this country is fully dominated by Thai language, and as most of the newspapers of Thailand are published in that language, it is expected that local scientific issues are reflected in those papers.

5.2.7 Russia

Present Scenario

Newspapers are the second most popular media in Russia, after television. Local newspapers are more popular than national ones, with 27% of Russians consulting local newspapers routinely and 40% reading them occasionally. For national newspapers, the corresponding figures are 18% and 38%, respectively. According to figures from the National Circulation Service agency, the most popular newspaper is Argumenty i Fakty which has a circulation of 2.9 million. It is followed by Weekly Life (1.9 million), TV Guide (1.2 million) and Perm Region Izvestiya (1 million). However, only about half of all Russian newspapers are registered with the agency. Some leading newspapers in Russia are tabloids, including Zhizn. The most important business newspapers are Vedomosti and the influential Kommersant. Many newspapers are opposition-leaning, such as the critical Nezavisimaya Gazeta and Novaya Gazeta, which is known for its investigative journalism. The main English-language newspapers are Moscow Times and The St. Petersburg Times. Six of the ten most circulated Russian newspapers are based in Moscow, while the other four are based in other cities and regions.

Conclusion

There are various newspapers which plays significant role at regional level. Hence it is obvious that local scientific issues will be given priority and actually this is true. So, Russian people are well educated about regional-local scientific news.

5.2.8 South Korea

Present Scenario

South Korea is, by all measures, a media-rich country. After decades of state control and heavy censorship, the South Korean press (in print, on television, and online) is experiencing a period of relative freedom. As of 2002, this country of over forty-seven million people had as many as 116 daily newspapers, with the top three of its national dailies boasting circulation of more than two million copies each. The national papers publish 44 to 52 standard-sized pages daily. They all use the Korean language Hangeul. National dailies in South Korea, according to their circulation are Chosun Ilbo (2,450,000), Joong-ang Ilbo (2,350,000), Dong-a Ilbo (2,100,000), Hankook Ilbo (700,000), Kyunghyang Shinmun

(450,000), Hankyoreh Shinmun (450,000), Korea Daily News (400,000), Kukmin Daily (350,000), Munhwa Ilbo (300,000), Segye Times (200,000) etc. Some selected local dailies are Busan Ilbo (400,000), Daegu Maeil Shinmun (170,000), Kookje Daily News (of Busan) (100,000). On the other hand, the English-language dailies serve the non-Korean community, especially the U.S. military contingent. There are about 37,000 U.S. troops stationed in South Korea.

One physical difference in the look of the Korean press is the prominent display of some major advertising on the bottom half of the front pages because it is the most expensive ad space. Although all the ten national dailies strive to be quality papers that stress hard news, their news stories tend to be relatively short, which in turn is an indication that in-depth reporting is the exception not the rule. There are 39 local daily papers in Korea, published in nine provinces; they are mostly based in provincial capital cities and other urban centers. Their daily issues range between 24-36 pages long. Compared to the national dailies, their circulation is quite small—25,000 to 50,000 copies at most.

Conclusion

Many regional languages, many newspapers. But still there is lacuna to publish much local science news through regional newspapers.

5.2.9 North Korea

Present Scenario

The media of North Korea is amongst the most strictly controlled in the world. "A Quiet Opening: North Koreans in a Changing Media Environment" a study commissioned by the U.S. State Department and conducted by Intermedia and released May 10, 2012 shows that, despite extremely strict regulations and draconian penalties, North Koreans, particularly elite citizens, have increasing access to news and other media outside the state-controlled media authorized by the government. The constitution nominally provides for freedom of speech and the press. However, the government prohibits the exercise of these rights in practice, unless it is in praise of the country and its government and leader. The government not only tightly controls all information coming in and out of the country, but seeks to mold information at its source.

Newspapers include: Rodong Sinmun (Labour Daily) – (Central Committee of the WPK), Joson Inmingun (Korean People's Army Daily), Minju Choson (Democratic Korea) – government organ, Rodongja Sinmun (Workers' Newspaper), The Pyongyang Times (English-language; published in the capital). North Korea has 12 principal newspapers and 20 major periodicals, all published in Pyongyang. Foreign newspapers are not sold on the streets of the capital. Every year, North Korean press jointly publishes a New Year editorial, which regularly attracts the attention of the international news media.

Conclusion

Press freedom is totally a question mark in this country and hence science communication at regional level through local newspapers is very doubtful.

5.2.10 Japan

Present Scenario

Claims of media bias in Japanese newspapers and the mainstream media in general are often seen on blogs and right-leaning Internet forums, where the "mass media" (masu-komi in Japanese) are often referred to as "mass garbage" (masu-gomi). The present circulation figures for the morning and evening editions of Japan's largest newspapers: Yomiuri Shimbun, 14,067,000; The Asahi Shimbun, 12,121,000; Mainichi Shimbun, 5,587,000; Seikyo Shimbun, 5,500,000; Nihon Keizai Shimbun, 4,635,000; Chunichi Shimbun/Tokyo Shimbun, 4,512,000; Tokyo Sports, 2,425,000; Sankei Shimbun, 2,757,000; Nikkan Sports, 1,965,000; Hokkaido Shimbun, 1,896,594; Sports Nippon, 1,711,000; The Nikkan Gendai, 1,686,000; Akahata, 1,683,000; Yukan Fuji, 1,559,000; Shizuoka Shimbun, 1,479,000; Sankei Sports, 1,368,000; Hochi Shimbun, 1,354,000; Daily Sports, 999,000.

Conclusion

Most of the leading newspapers publish in Japanese language and cover most of the population, though it is a question whether the local scientific developments are published in regional language dailies.

5.2.11 China

Present Scenario

The most popular newspaper appears to be Cankao Xiaoxi (Reference News), which is a collection of foreign wire service and newspaper reports in translation with a circulation of approximately 7 to 8 million. It contains international news, including commentary from media sources in Western countries, Hong Kong, and Taiwan. In terms of influence, the next most important newspaper is People's Daily, whose huge circulation is benefited by the mandatory subscription of all Chinese working units. People's Daily runs five subsidiary newspapers, including its overseas edition, which is the official organ for propagating the Party line among the Chinese-reading public overseas. The other four editions include two editions covering economic news, a satire and humor tabloid, and an international news edition. Beijing Youth News is one of the most influential newspapers among younger Chinese audiences. It began on March 21, 1949, as an official organ of the Beijing Communist Youth League. The paper has been able to make the most of opportunities created by reform and commercialization.

According to the latest circulation report, Cankao Xiaoxi (Reference News) 9,000,000, Sichuan Ribao (Sichuan Daily) 8,000,000, Gongren Ribao (Workers Daily) 2,500,000, Renmin Ribao (People's Daily) 2,150,000, Xinmin Wanbao (Xinmin Evening News) 1,800,000, Wenhui bao (Wenhui Daily) 1,700,000, Yangcheng Wanbao (Yangcheng Evening News) 1,300,000, Jingji Ribao (Economic Daily) 1,200,000, Jiefang Ribao (People's Liberation Army Daily) 1,000,000, Nanfang Ribao (Nanfang Daily) 1,000,000, Nongmin Ribao (Farmer's Daily) 1,000,000, Zhongguo Qingnianbao (China Youth Daily) 1,000,000.

As of 1997 there were 143 evening newspapers in China. Three of them have circulations of over 1 million. They are the Yangcheng Evening News, Yangzi Evening News, and Xinmin Evening News (China National Evening Newspaper Association). Local evening papers, usually general interest dailies, are among the best sellers. They are under the direct control of the municipal Party propaganda committee and with more soft news content closer to everyday urban life are aimed at urban families.

Conclusion

The huge gap between Chinese urban and rural areas in terms of living standards is reflected in the access to the media and information. Although the majority of the Chinese population are peasants (79%), Chinese media basically serve urban populations since they are more educated and enjoy greater consumption power. Because of high illiteracy rates and the rapid increase of radio and television sets among Chinese peasants, rural residents increasingly use television as their source of information rather than newspapers.

Hence, it is also questionable whether local newspapers are the major source of scientific information in regional language!

VI. Research Methodology

This is a social and scientific research based on different information that has been obtained from various sources. To discover the new facts and analyzing the old facts is the main motto of this research work. Here, it has been tried to find the inter-relationship between development of the society and the role of print media, basically newspaper, with role of scientific knowledge within a theoretical frame of reference. It is also the ex post facto research as there is no control over the variables. It is also a special type of historical research work, as many historical resources as primary and secondary data has been used in this research. It is also the exploratory research work as various persons of different occupation and from different cities across the South-east Asia has been interviewed to gain a better understanding of the linkage in different area. This is also the empirical research work as it is based on observation and statistical tests have been applied to verify the observations as it is a data based research work. How much local scientific news are reflected in the regional

language newspapers and how translated news are distorted from original news is of our main target and research methodology has been applied by keeping it in mind.

VII. Research Design and Sample Survey

As it is a comparative analysis and study of local scientific news catered through print media, between English and other regional languages of the countries of South-east Asia, it was obvious that English language was taken at one hand and Dari for Afghanistan, Bangla for Bangladesh, Hindi for India, Bahasa for Indonesia, Urdu for Pakistan, Thai for Thailand, Mandarin for China, Korean for South and North Korea, Russian for Russia on the other hand. Then, from each country, the largest circulated morning daily was taken to compare with English Daily of that country and total comparative space share of science news was considered. Distortion for translation in regional languages was also studied. Lastly a special survey was done by sending research questions abruptly among 50 citizens of each capital of every country regarding their views on science news at local level through regional languages and also distortion due to translation. Total 550 samples were collected throughout 11 countries viz. Afghanistan, Bangladesh, India, Indonesia, Pakistan, Thailand, China, Japan, South Korea, North Korea and Russia. People of all sectors like scientists, professors or lecturers, readers, editors, advertisers, journalists, science news reporters, doctors, lawyers, engineers, administrators, industrialists, politicians, proprietors, police personnel, technical assistants, teacher, students, cultural personality, public relation officers, N.G.O., social worker and obviously common people were chosen for survey. Questionnaire was given through e-mail, post, face-to-face interview and telephonic communication. Every question contains 3 options- Yes/No/Don't know. If yes it will carry 3, if no, it will carry 2 and consecutively the last will carry 1.

VIII. Research Questions

R.Q.1) Do you like to read science news daily? (Yes/ No/ Don't know)

R.Q.2) Do you like to read science news in regional language? (Yes/ No/ Don't know)

R.Q.3) Do you like to read local science news from your regional language daily or from only English daily? (Yes/ No/ Don't know)

R.Q.4) Are you satisfied with local science news that has been published daily in regional language newspapers? (Yes/ No/ Don't know)

R.Q.5) Have you ever found any distortion in translation in major science news of your country? (Yes/ No/ Don't know)

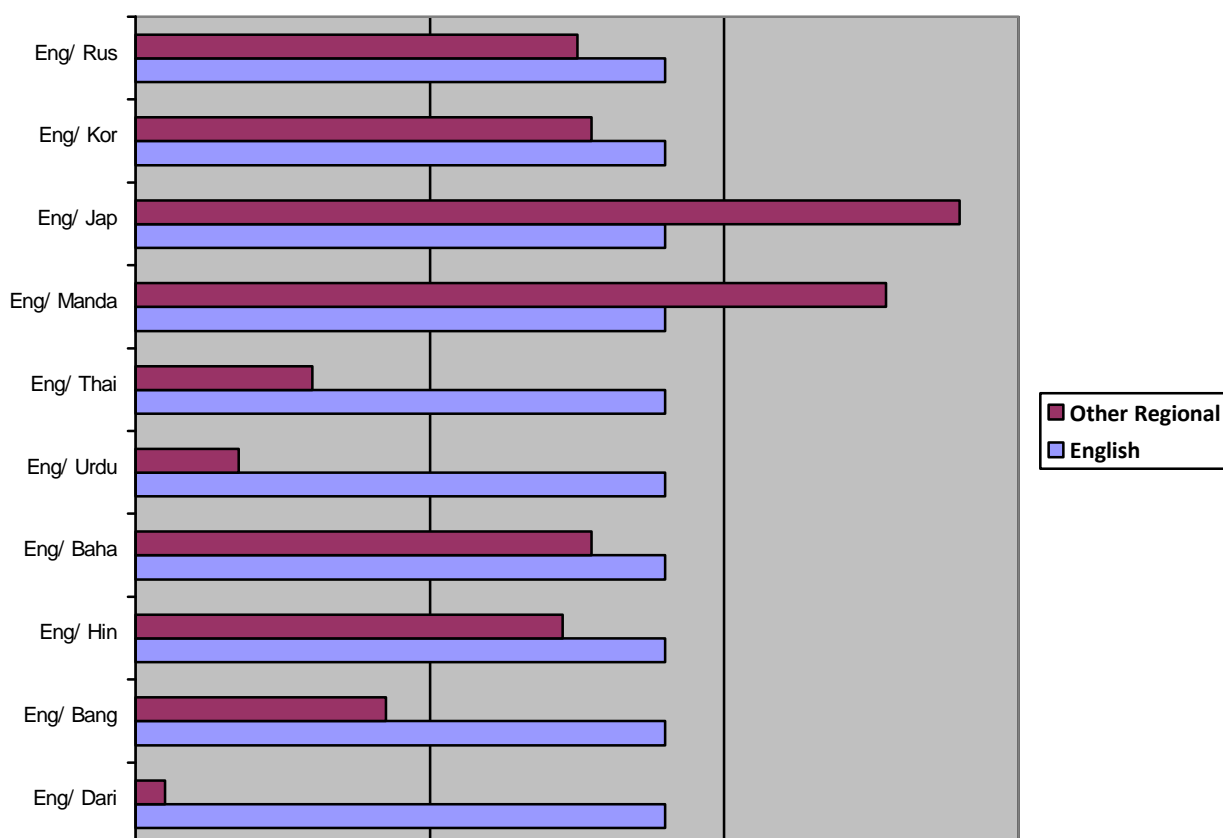
9. Results

9.1 Result-1

National Language	% of Space Share	Regional Language	% of Space Share
English	3.6	Dari	0.2
		Bangla	1.7
		Hindi	2.9
		Bahasa	3.1
		Urdu	0.7
		Thai	1.2
		Mandarin	5.1

		Japanese	5.6
		Korean (South)	3.1
		Korean (North)	3.1
		Russian	3.0

Research study shows that, among all the news in English, 3.6 % are only science news. Whereas in Dari language it is 0.2%, in Bangla it is 1.7%, Hindi 2.9%, Bahasa 3.1%, Urdu 0.7%, Thai 1.2%, Mandarin 5.1%, Japanese 5.6%, Korean 3.1% and Russian 3%.



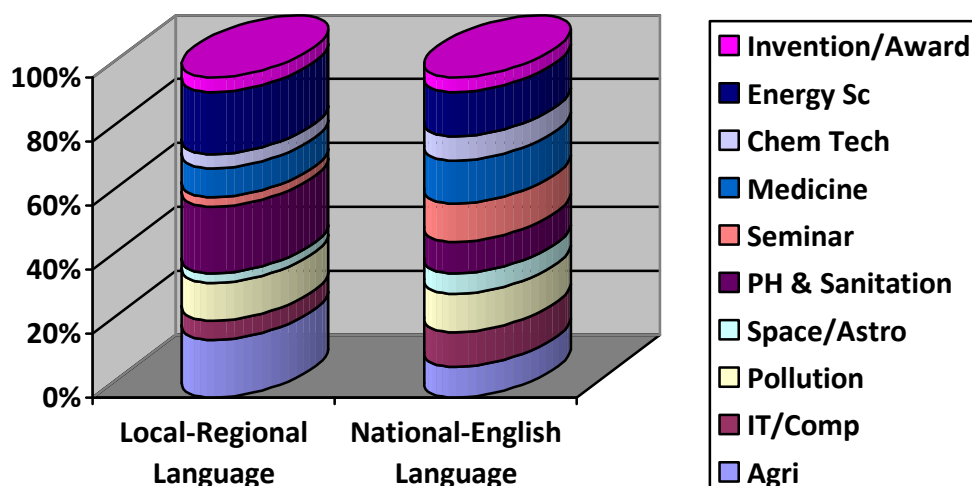
Graph: 1 Comparative diagram of Science News published in English vs Regional Languages

9.2 Result-2

Major Scientific News/Events	Local Level-Regional Language (In percentage of total news)	National Level-English Language (In percentage of total news)
Agriculture	1.2	2.7
IT & Computer	0.4	3.1
Pollution & Environment	0.8	3.4

Astrophysics/Space Science	0.2	1.8
Public Health & Sanitation	1.4	2.8
Science Seminar/Workshop	0.2	3.4
Medicine	0.6	3.8
Chemical Technology	0.3	2.2
Energy Science	1.3	3.9
Inventions/Awards etc	0.3	1.3

From chart and the graph below, it is found that, among local scientific news at regional language newspapers, agriculture, pollution, public health and sanitation and energy science plays significant role compared to other science news. On the other hand, at national level morning English daily, energy science, pollution related news, IT and computer science, new drugs and medicines, international and national level seminar news cover most of the science news space.



Graph: 2 Comparative diagram of Different Sectorial Science News in English vs Regional Languages

9.3 Result-3

From the research questions it is found that major citizens of South-east Asian countries are not satisfied with science news to read English and they think it better to like it in regional languages.

From **R.Q. 1)**, it is found that, 82% like to read science news daily, 8% said no and rest 10% don't know. From **R.Q. 2)**, it is found that, 92% like to read science news in regional language, 3 % said no and 5 % don't know. From **R.Q. 3)**, in this research it is found that, 71% people like to read local science news from their regional language daily, 23% said it no and 6%, don't know. **From R.Q. 4)**, only 15% are satisfied with local science news that has been published daily in regional language newspapers, 72% are not satisfied and the rest don't know. **From R.Q. 5)**, it has been found that, 23% they have found any distortion in translation in major science news of your country, 52% said that there is no distortion and 25% said that they don't know.

10. Discussions and Conclusion

Post- liberalisation and more so in the last ten years, Regional Language Media is experiencing high volume growth both horizontally and vertically in comparison to English Language Media. Even the smart phone sale is also riding on regional language-friendly handsets. There Feedback from all users helps in the future improvement and development of web materials.

Looking at the population, size and make up, variety of languages, urban-rural, digital divides, prevalent disparities, poverty, illiteracy, inadequate opportunities, facilities, services, reach of mass media, and so on, various South-east Asian countries are poised with many challenges, that offer opportunities and possibilities in S&T communication. Use of local languages, dealing with everyday S&T problems, using surroundings and environs at home, in field and outdoors, learning by doing, are some of the elements of this parallel approach of science communication and popularization movement in those countries.

A multi-prolonged strategy is required to make science communication more effective and to address obstacles associated with it. Scientists should be trained in the art of science communication while journalists must be oriented towards at least the basic understanding of sciences and its methodology. More platforms should be created to engage scientists and media practitioners to have close dialogues on issues pertaining to scientific developments.

Last but not the least, the issue of professional dialects and departmentalism is a serious problem that must be fixed strategically to enhance free flow of scientific information to the non-scientific community. While transmission of information remains important, the challenge remains to develop transaction modes of science communication.

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