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Communication Technology : Bridging the Rural - Urban Divide

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Remoteness of a location is no longer related to lack of access to roads. This is becoming increasingly the case in many countries of Asia, where the growth in the number of telephone lines has been spectacular in the last 20 years. The rate of growth in telephone lines in Asia during 1975-1990 is even better than the average growth rate in the developed countries (see table below). What is interesting is the fact that the fault rate in telephone lines in Asia (26 for 100 lines on the average) is comparable with the fault rate in the developed countries (18 for 100 lines). Such efficiency and quality does not obtain in maintenance of roads in Asia, where the proportion of paved roads in good condition ranges from 30-70%, whereas it is generally over 85% in the developed countries^{*}.

Number of Main Telephone Lines

Country	Year		% increase
	1975	1990	
India	1,465,000	2,295,530	57
China	3,262,000	6,850,300	110
Indonesia	219,400	1,069,015	387
Philippines	304,000	610,032	101
Thailand	237,000	1,324,522	459
Malaysia	194,000	1,585,744	717
Korea, Republic	3,325,000	13,276,449	299
Hong Kong	910,000	2,474,998	172
Singapore	249,000	1,040,187	318
Japan	34,444,000	54,523,952	58
Australia	3,700,000	7,786,889	110
United States	82,802,000	136,336,992	65
France	8,444,000	28,084,922	233

Source : World Development Report 1994

^{*} Data derived from *World Development Report 1995* (World Bank, Washington DC).

The telecom has rapidly acquired the status of a critical infrastructure such as power, and the investments in telecom often are comparable with investments in power, particularly in the last few years. There is then a whole spectrum of technologies that cater to the entertainment/leisure needs, ranging from terrestrial TV to DTH which have become channels for major investment in Asia. Combined together, the print media, telecom, and the electronic (entertainment) media represent a major group of economic activities and are a formidable influence in shaping cultural values and education on a mass scale.

But these are emerging in a world where income disparities are getting sharper by the year. The Human Development Reports of the United Nations Development Programme have, year after year, been pointing out the fact that 20% of the world's population has access to over 84% of the resources, while the poorest 20% has access to less than 4% of the resources. In Asia, where over 50% of the world's poor live, the jobs are not increasing at the same rate at which wealth is created, leading to what we may call Jobless growth (see diagram). Unless the new, emerging information/communication infrastructure is able to contribute to job creation, the issue of increasing income disparities is bound to affect its future.

The issue of cultural values being influenced by the new information infrastructure has been noted worldwide. There is concern about the erosion of cultural values under the influence of the sameness that the new technologies seem to promote. Referring to satellite TV, a commentator in a Delhi-based daily called it the equivalent of a termite attack. In Southeast Asia, several leaders have expressed concern over the consequences of allowing unrestricted access to the internet. There are, however, many difficulties in converting such concerns into practical propositions, largely stemming from the technological intensity of the infrastructure, and from the rapid pace of technological developments that will quickly overwhelm the legal/regulatory systems that can be put in place. Even governments in developed countries have had trouble attempting content-control on the internet.

The content in the new information infrastructure is thus an issue to be addressed by various actors at various levels. Recently, a group of leading businessmen and senior officials of the Government of India commissioned a blue-print of a multimedia infrastructure for India. One significant conclusion of this group was that the content of internet as it exists could not become the sole basis for the construction of a multimedia infrastructure in India. Instead, the group recommended creation of certain specialised content in the proposed infrastructure that would suit the Indian conditions better, with the infrastructure itself having an identity apart from the internet. This is a further indication of the fact that the value addition to information in the new infrastructure is going to be a formidable task in the future in many Asian societies.

The task of adding relevance and content to the information infrastructure in Asian societies is therefore critical and needs to take into account the following facts :

- the largest number of poor families in the world live in rural Asia
- the largest number of illiterates in the world live in Asia
- in spite of accelerating trend of urbanisation, and the increase in rural-urban migration the absolute number of rural families in Asia will continue to increase for the next 50 years.

Further, the anticipated large increases in demand for food in Asia must be met from increasingly scarce arable land and water, and there is need for rapid systems for delivery, trial and adaptation of new technologies in agriculture that would address the food security issue. The information infrastructure has great potential in effecting technology delivery, and this was emphasised in the Declaration of the World Science Academies Summit in Food Security (see accompanying box).

Operational Implications of Food and Nutrition Security in the Future

1. The *physical dimensions* of food and nutrition security will involve a transition from chemical- and machinery-intensive to knowledge-intensive and eco-friendly farming technologies.
2. The *economic dimensions* of food and nutrition security require the promotion of sustainable livelihoods through multiple income-earning opportunities, such as can be offered through crop-livestock-fish integration, agroprocessing and agribusiness.
3. The *social dimensions* of food and nutrition require addressing gender, class and ethnic discrimination against marginalised sectors of society, who consequently tend to be the most food and nutritionally insecure.
4. The *environmental dimensions* of food and nutrition security will involve attention to soil health care, water harvesting and management and the conservation of biodiversity, as well as to sanitation, environmental hygiene, primary health care and education.

Ultimately, self-reliance and skill- and labour-intensive technology must be the basis of food and nutrition security. As agriculture provides most of the jobs in many developing countries, the import of food by these nations would be equivalent to importing unemployment.

(extracted from the Declaration of the *World Science Academies Summit on Food Security*, Madras, India, 1996.)

It is possible to build on some of the existing strengths, skills and recently available knowledge of collective learning to promote a paradigm that enables frontier information and communication technologies to reach the unreached, to create new opportunities for the rural population to learn, to market their produce and to experience improved forms of entertainment and leisure. Combination of the knowledge-intensive requirements of the emerging techniques in sustainable agriculture and the communication technology is the corner stone of this proposed paradigm.

The M.S. Swaminathan Research Foundation has been involved in designing a programme called "Information Village" which may be one example of a new paradigm development. The Information Village programme aims to bring together a consortium of information/communication professionals from the academia, media, government/public sector, private sector and experts in rural development to create a blend of modern communication technologies that would address the knowledge-intensive requirements of the rural families as they make the transition to sustainable agriculture. (This is schematically presented in the diagram).

Within each village/hamlet/settlement, a group of volunteers will provide the link (on wireless or wired phone) with the value-addition centre. This group will retail the value-added, locale-specific information to the resident families, and convey their queries to the value-addition centre. A large variety of information can be transacted both ways using such an "information shop" which will eventually manage information as well as money flows. This shop will also provide access to a radio receiver, TV and will create bulletins with local news. The technology to provide a personal computer in such a shop with high-speed connectivity to networks already exists and is available for a price less than USD1000 (in India). With this added, the village community will have a reasonably modern information infrastructure in place. Access to multimedia edutainment titles will be an advantage.

As an infrastructure, the value-addition centre (in Indian conditions, this is expected to serve a rural population of 15000) will generate highly-skilled employment for about 3 persons and skilled jobs for about 3 more. The information shops each can generate gainful employment for 2 persons per hamlet, thus generating 36 jobs per infrastructure unit. (Again, in India, 10000 such infrastructure units can be created within the existing telecommunications infrastructure). As information infrastructure is a vital link between the rapidly growing rural enterprises and markets, a large number of indirect skilled jobs can get created.

In the next 20 years, massive investments in information infrastructure will continue to be made in Asia. In Japan, the Nippon Telephones and Telegraphs company has announced its plans to connect every home and office with fibre optic cable by the year 2015. The investment in this endeavour is likely to range from USD 150-200 billion. The plan for creation of a Multimedia Super Corridor in Malaysia is another instance of an investment in the technology of future. The climate generated by such investments, and the need to make a transition to a knowledge-intensive paradigm of agriculture and rural development create uncommon opportunities for the use of a technology-intensive infrastructure for the benefit of the rural societies in Asia. Remoteness is no longer identified with lack of access to roads, but more with lack of access to information infrastructure. Bridging the remote is now a task that the new technologies can themselves do, when they are linked with creating sustainable livelihood security for the remote, unreachable population.

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