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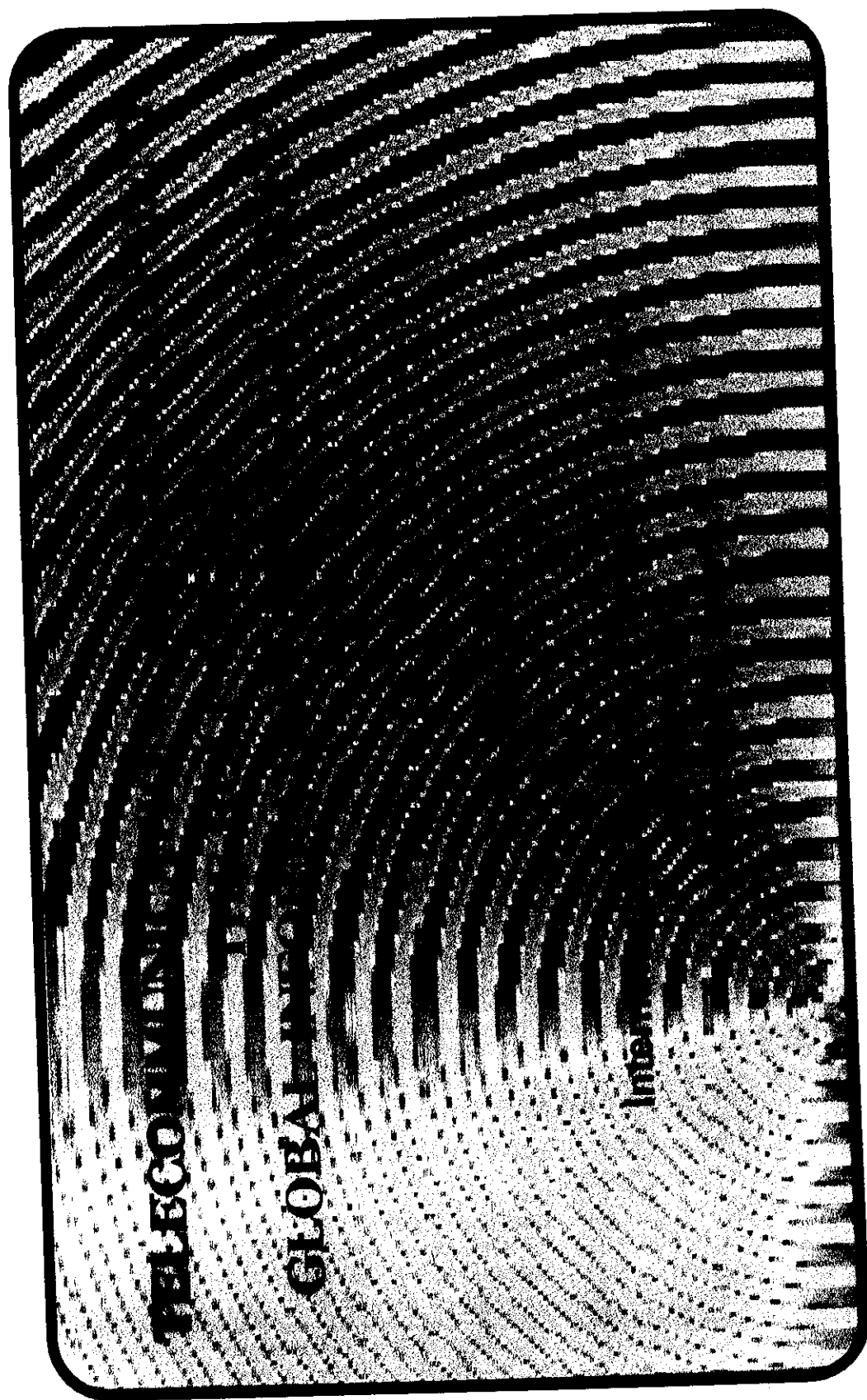
## **ICTP - URSI - ITU/BDT WORKSHOP ON THE USE OF RADIO FOR DIGITAL COMMUNICATIONS IN DEVELOPING COUNTRIES**

( 17 - 28 February, 1997 )

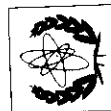
# **Telecommunications and Development: the Role of the Global Information Infrastructure**

S.M. Radicella

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## THE INFORMATION REVOLUTION

*Information technology* — essentially the result of the combination of telecommunication and computers — *affects virtually every sector of society.*

Decrease of the cost of processing, storing, and transmitting information at the rate of 50 percent every 18 months

+

human ability to access, interpret, and use that information

=



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**Information technology is changing how we:**

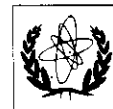
- ⇒ work,
- ⇒ play,
- ⇒ learn,
- ⇒ travel, and
- ⇒ govern.

**It is transforming business and society giving rise to a new kind of economy — THE INFORMATION ECONOMY — in which information is the critical resource and the basis for competition.**

**INFORMATION ECONOMY rests on the change from a production of merchandise economy to a production of services economy.**



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## **SERVICE SECTOR IMPACT**

In Japan, the contribution of the service sector to 41 per cent of economy output.

Service sector in emerging economies as Singapore or Senegal, Hongkong or Hungary, contribute over 60 per cent of the nation's economic activity.

In the world's least developed economies, the share of the service sector (43 per cent) is higher than agriculture (37 per cent), or industry (20 per cent).



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## THE SHARE OF INFORMATION

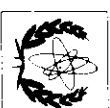
### HOUSEHOLD INFORMATION AND FOOD CONSUMPTION IN THE UNITED STATES

(IN % OF TOTAL EXPENSES)

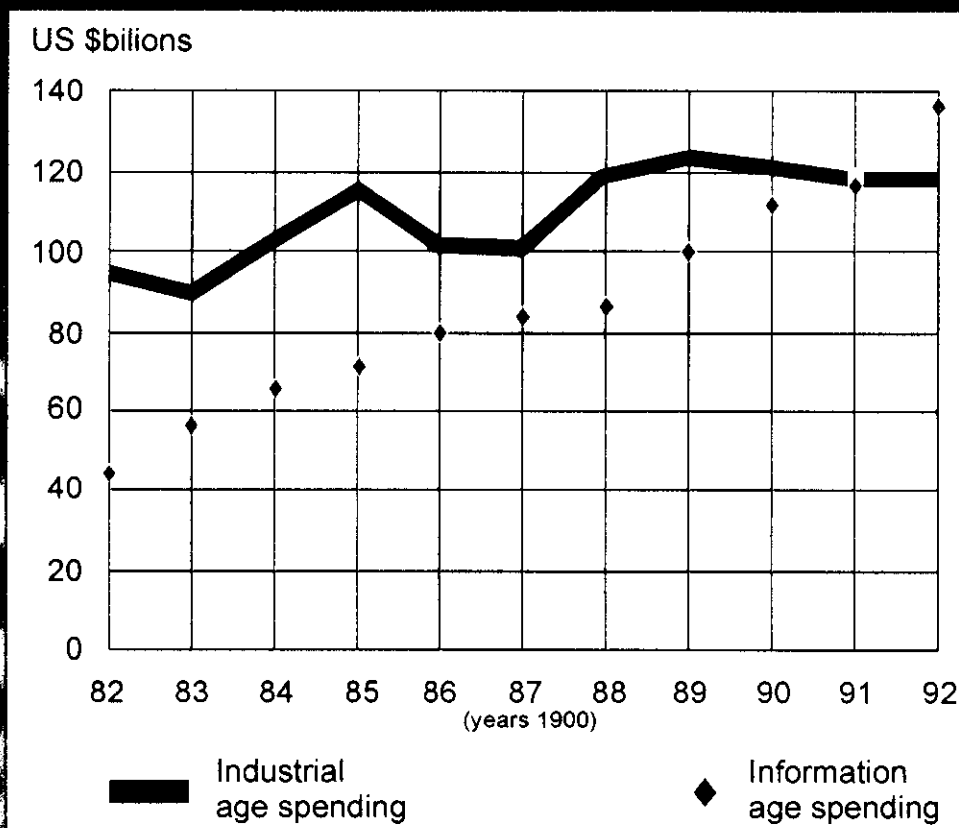
	Information	Food
1980 =	9.9	19.9
1992 =	12.5	16.5



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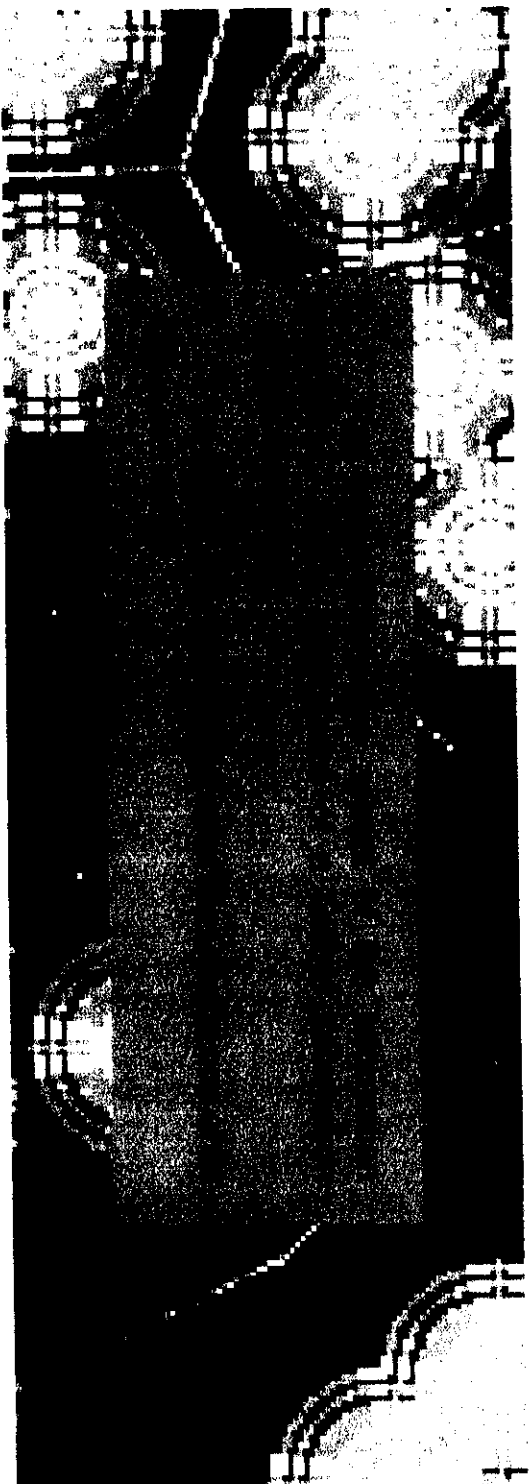
## DATE OF BIRTH OF THE INFORMATION AGE



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# THE GLOBAL INFORMATION INFRASTRUCTURE

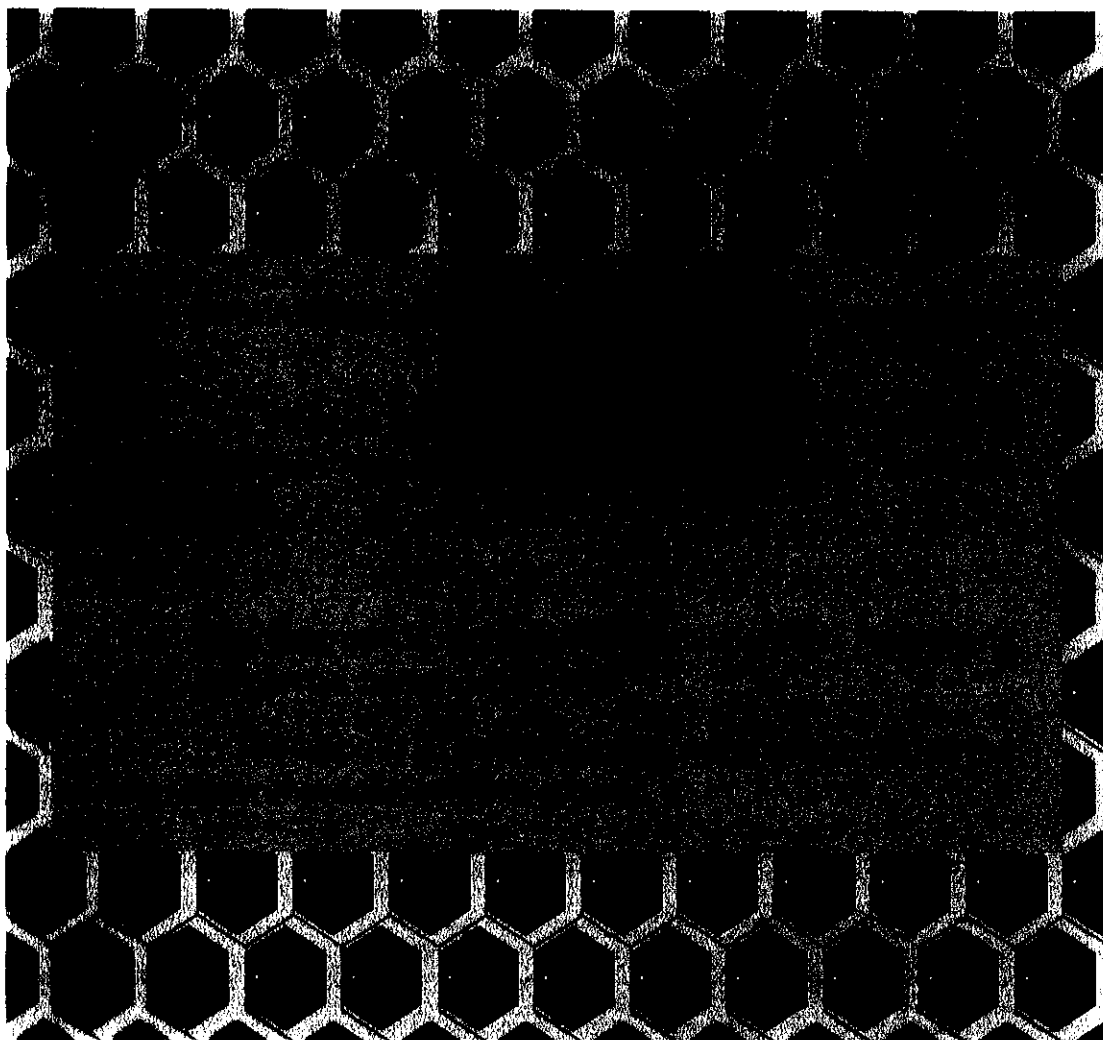


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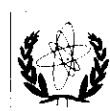




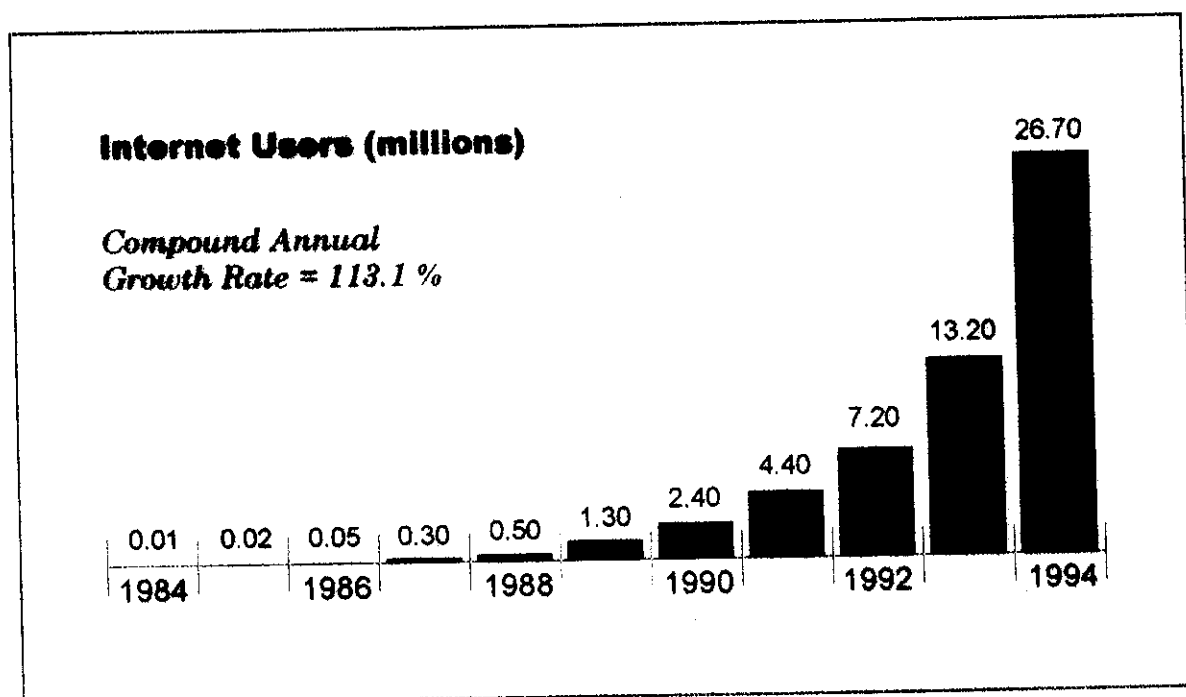
# THE INTERNET



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## INTERNET USERS



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## INFORMATION AND DEVELOPMENT (Basic Concepts)

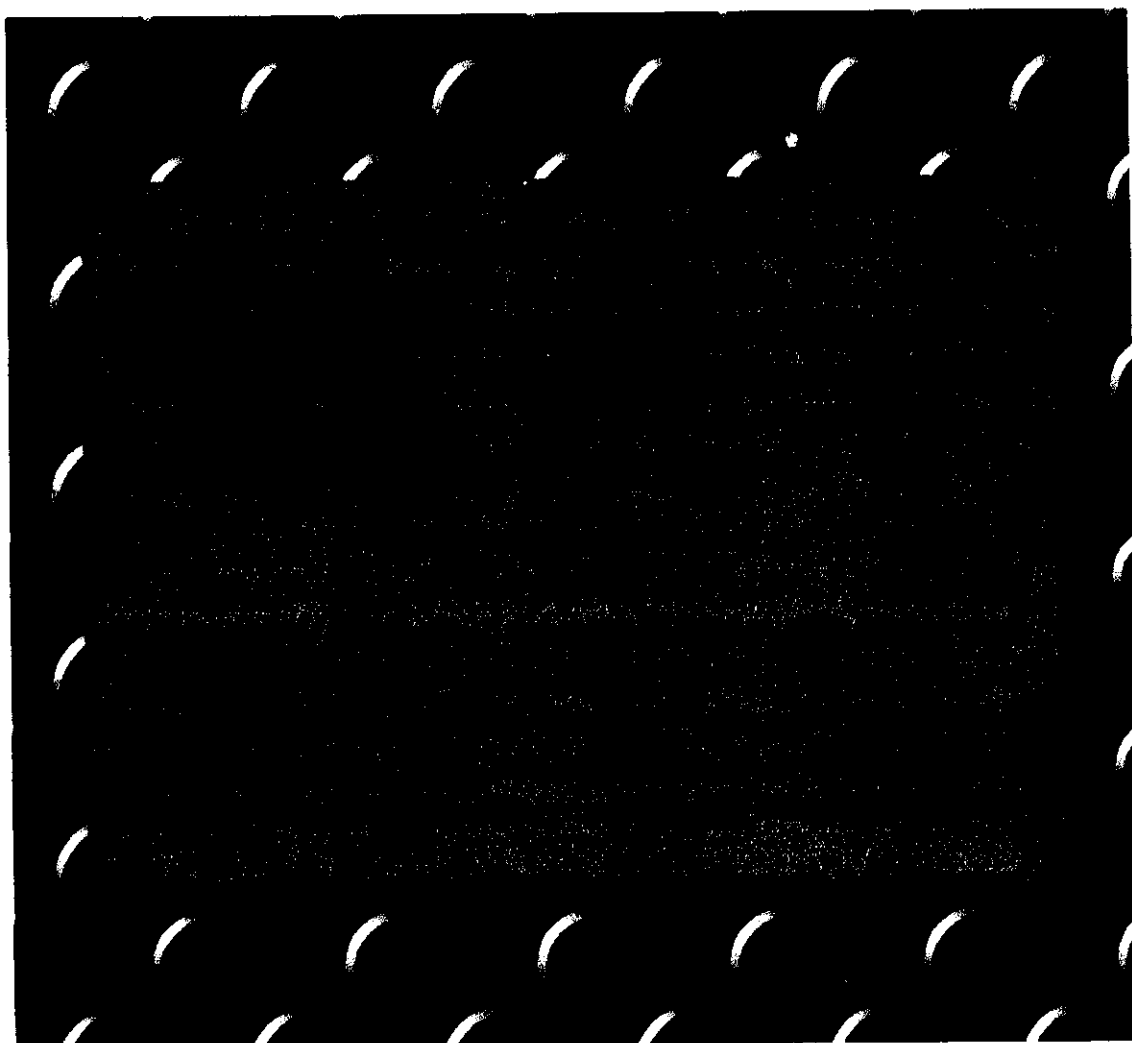
- ◆ In a knowledge-based society, knowledge is at least as important as capital in the production of wealth.
- ◆ The basis of the information infrastructure is the telecommunication infrastructure.
- ◆ Information technology, when designed for the right job, can be used even in regions that lack adequate water, food and power. It is often indispensable in meeting basic needs.
- ◆ The distinctions between developed and non-developed countries will be joined by distinctions between well and less communicated countries, and less and more communicated countries, networked nations and isolated ones.



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## THE SITUATION IN DEVELOPING COUNTRIES — 1 —



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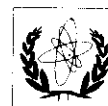


## THE SITUATION IN DEVELOPING COUNTRIES — 2 —

- ✓ Access to the Global Information Infrastructure is inadequate, and progress depends on the telecommunications systems that needs urgent reforms and improvements not yet implemented.
- ✓ Countries with little existing communications infrastructure should proceed directly to the use of radio technologies and fiber to overcome the problem.
- ✓ This possibility however will critically depend on good policies and leadership to mobilize their national society towards well established goals.

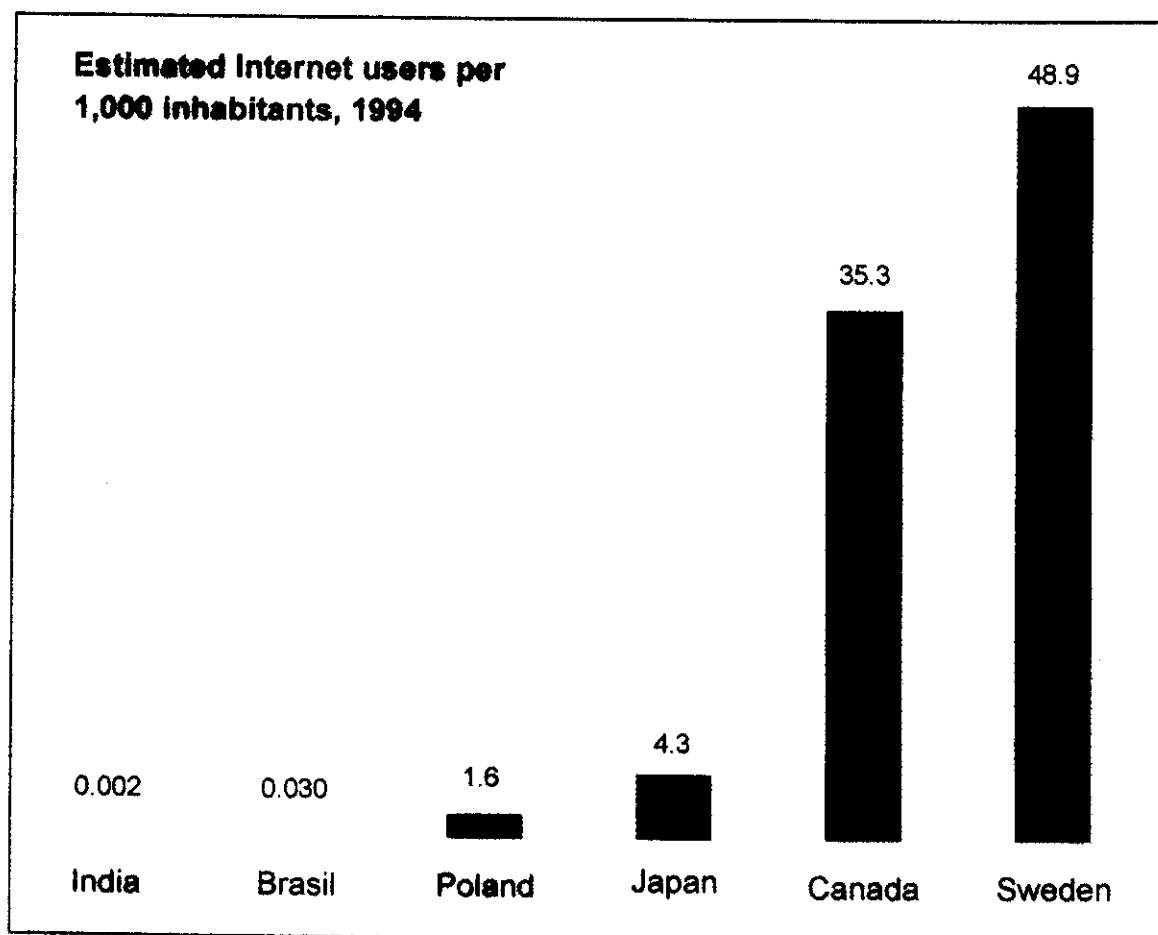


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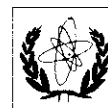


## THE SITUATION IN DEVELOPING COUNTRIES — 3 —

### INTERNET USERS PER COUNTRY



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## WHO IS GOING TO HELP ?

- In some countries private sector has to take the lead in developing the use of information technology.
- In other countries a combination of new public intervention and direct support by regional and international institutions is necessary.



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## INFORMATION AND RURAL DEVELOPMENT

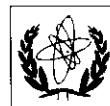
Information technology bring new resources and channels for the communication needs of rural communities.

To achieve sustainability and success the use of information technology must:

1. — meet the real needs of the local community of users.
2. — be independent from the pressure of information and telecommunication market.
3. — build the awareness of the uses of such technology.
4. — build locally managed, and finally, self-supporting communication and information networks.
5. — implement capacity building programs at all levels.
6. — establish a dialogue with national telecommunication administrations to help the necessary transformation and liberalisation of the telecommunication services.



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## EXAMPLES

- HealthNet Internet service that operates in Zambia provides rural health care professionals with access to medical databases and rapid medical advice from specialist physicians around the world.
- In Mexico and Chile, rural farmers are able to obtain timely and accurate commodity prices from Internet and fax services, and use this information to bargain for prices from brokers that are 15% to 20% higher than they were previously able to obtain.



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## INFORMATION AND ACADEMIC AND RESEARCH INSTITUTIONS

**X** One of the main handicaps for the maintenance and enhancement of academic and research activity in developing countries is the chronic isolation of individuals and small groups operating in universities and research institutions.

**X** This is one of the primary causes of the brain-drain of professionally skilled people that jeopardise any real and sustainable development.

**X** Information technology can help substantially to overcome the isolation of academic and research staff by networking them at campus and country level and by linking them through Internet to their peers in the world.



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**The World Bank notes that some 23,000 qualified academic staff are emigrating from Africa each year. It estimates that 10,000 Nigerian are now employed in the United States alone.**



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## AN EXAMPLE OF THE ROLE OF INTERNATIONAL COOPERATION

- \* The ICTP Programme of Training and System Development on Networking and Radiocommunications to provide technical assistance and training to academic and scientific institutions in developing countries.
- \* This Programme is partially financed by the United Nations University and has received support from the Swiss Telecom.



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## PROGRAMME ACTIVITIES — 1 —

→ Collaboration in the establishment of the Pilot Educational and Research Centre for Physics at Obafemi Awolowo University, Ile-Ife (Nigeria) (1966)

→ In the words of the Director of the Centre, "the network is:

*"has provided a significant contribution to the academic life of the University. It has facilitated exchange within and between departments and become simplified, cheap and widely available. Obafemi Awolowo University staff have been removed from the state of isolation suffered by overseas staff developing countries including Nigeria."*



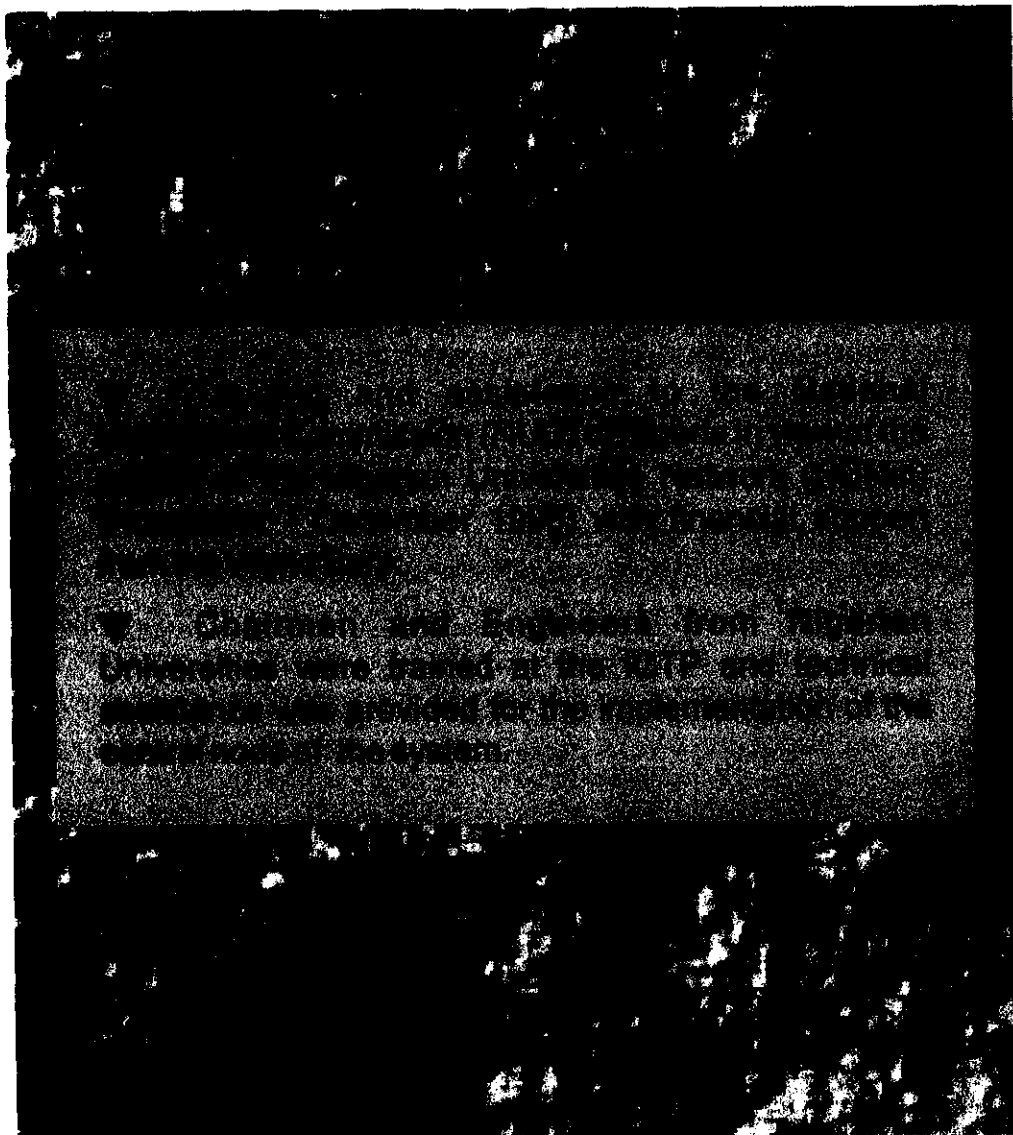
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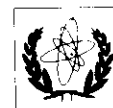
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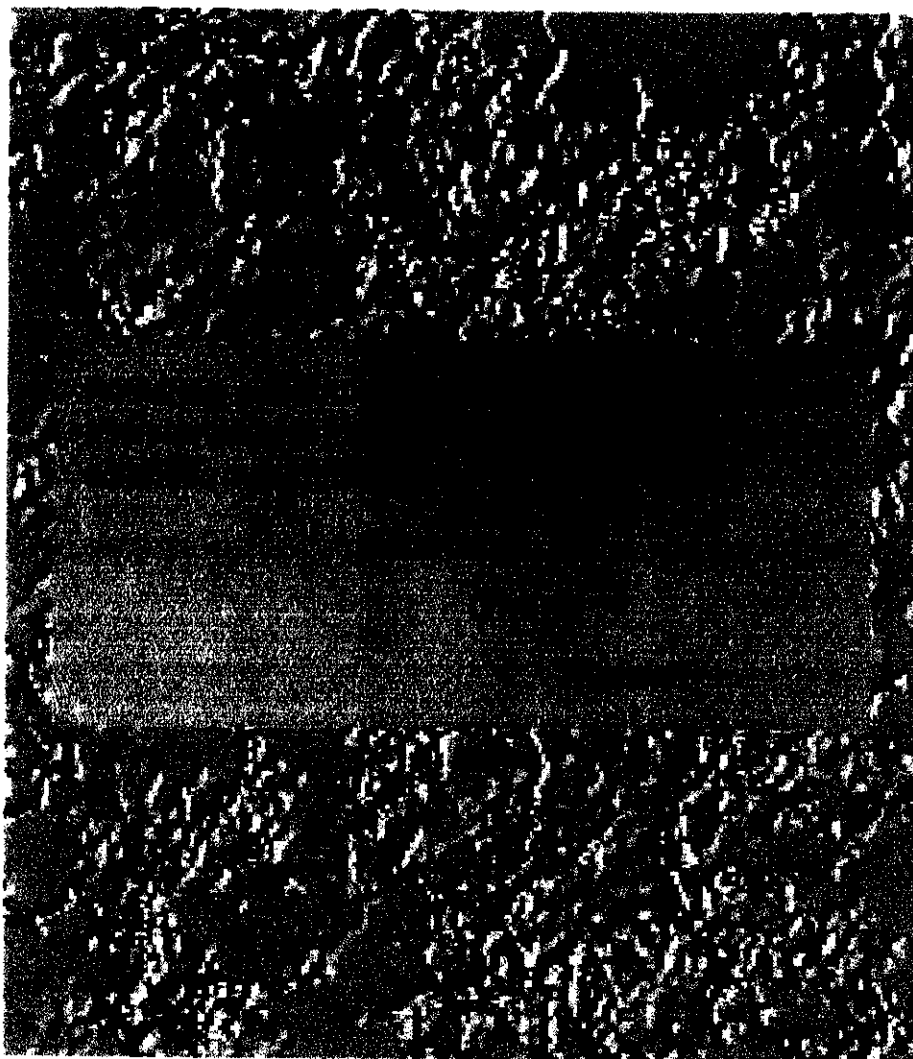
## PROGRAMME ACTIVITIES — 2 —



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## PROGRAMME ACTIVITIES — 3 —



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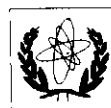


## CONCLUDING REMARKS ①

- ⇒ Information revolution is changing society and affects all aspects of life including education, work, entertainment, travel and business.
- ⇒ Individuals, groups, institutions and enterprises are becoming part of a global network.
- ⇒ An important condition for development is to be able to enter such network.
- ⇒ The GII should be the main tool of the new information guided society.



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## CONCLUDING REMARKS ②

- The information gap between developed and developing countries is dangerously large and a substantial portion of world population is outside the benefits of the information revolution.
- One of the main handicaps that developing countries must overcome is the inadequate telecommunication infrastructure affecting them.
- To make the necessary advancement towards breaking the information isolation of many developing countries the private sector, public national institutions and international organisations should work together.



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