



Connecting Rural India using corDECT WiLL

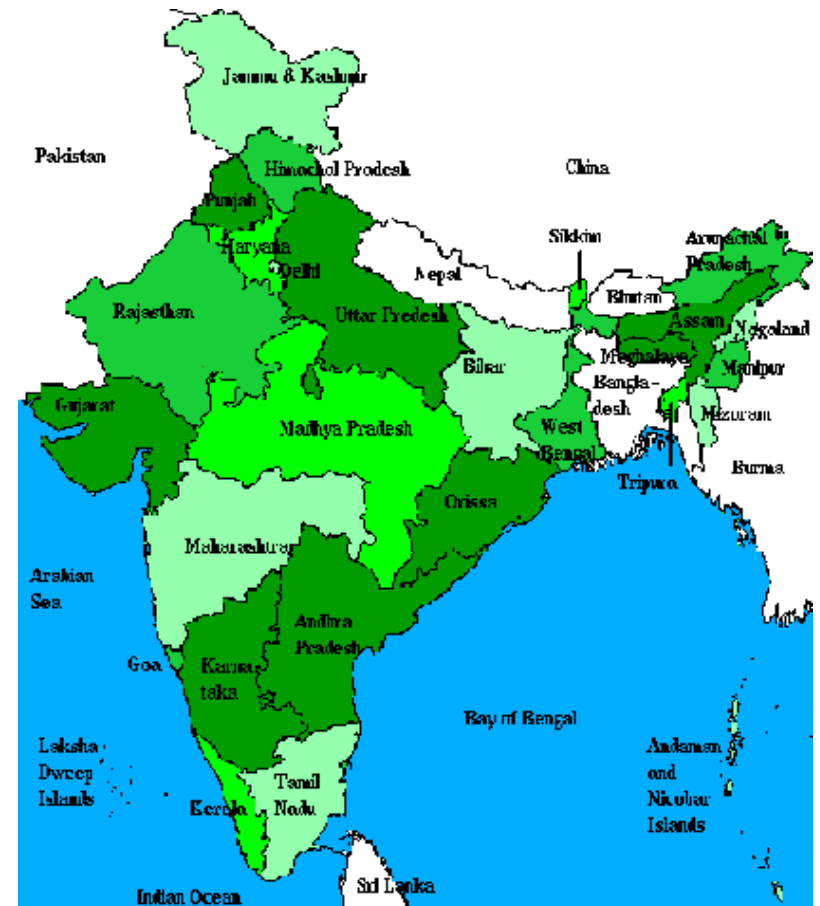
TeNeT Group
Depts. Of Electrical Engg. and Computer
Science & Engg.
Indian Institute of Technology, Madras



Background

India's Imperatives

- India has **1000 million** people
 - **180 million** households
 - India has less than **30 million** Telephones and **two million** Internet connections
- Internet is Power
 - needs **200 million** telephone and Internet connections in its cities, small towns and rural areas





Is this rapid growth possible?

- 30 million telephone and 2 million Internet ⇒ 200 million telephone and Internet connections
- What needs to be done to achieve this?
- Are there **lessons** to be learned ?



Lesson

- till 1987, less than 1 % homes had telephones
 - very few functional public telephone
- STD booths introduced in 1987
 - operated by a small entrepreneur (getting 20% call revenue)
 - simultaneous introduction of 25 % night-time charges
 - today more than 25 % of total telephone revenues from these booths
 - almost 30 % population start using telephones

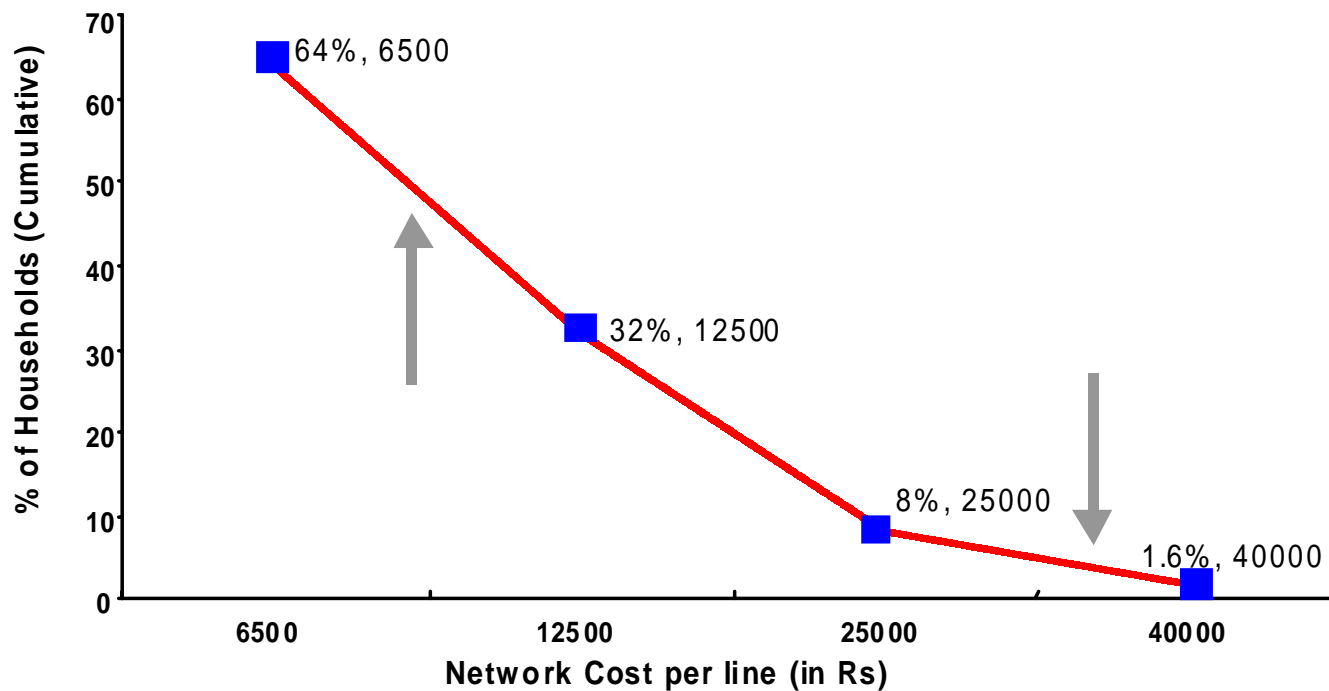
Lesson



- 1992: no cable TV connections at Indian homes
- Today: 50 million homes have connections
 - 100 million homes have Television
- Why? : TV and Cable TV are affordable
 - cable TV charges: Rs 60 to Rs 150 per month
 - Widespread use of second hand TV due to innovative buy-back schemes
 - Black & White TV available at Rs 1200 in rural areas
 - is affordable to 60 % of Indian households
 - Cable TV operators services a neighborhood
 - small scale entrepreneurs use a dish antenna and cable to serve in about 700 m radius
 - operation cost about a third of that of corporate sector
 - benefit of lower operation cost passed on to the customer

Telecom Affordability for Indian Households

- Telephones: costs about **Rs 30,000 per line** to install
 - yearly revenue must be at least **35% of investment** (15% finance charges, 10% depreciation and 10% Operation) to break even
 - **Rs 12,000 per year or Rs 1000 per month**
 - **not affordable to more than 2 to 3 % of households**





But why is the cost so high?

- Telecom and Internet in developed countries costs \$ 800 to \$1000 per line
 - requires \$ 350 per line per year to service
 - is affordable to over 90% of households in the West
 - R&D focus shifts from cost reduction to enhancing basket of services and features keeping the cost constant
- It becomes our task to bring down the cost to **Rs 10,000 per line** in order to provide 200 million Telecom and Internet connections in India



Policy Lacunae

- Access network contributes to 70 % of per line cost of the network
 - access network should be operated by **small operators**
 - like cable TV
- But privatisation process allow only state-level large operators
 - small operators who could invest Rs 1 million to 3 million and provide service in a locality not given space
 - **cable-TV** penetration lesson not learned
 - small towns and rural areas ignored



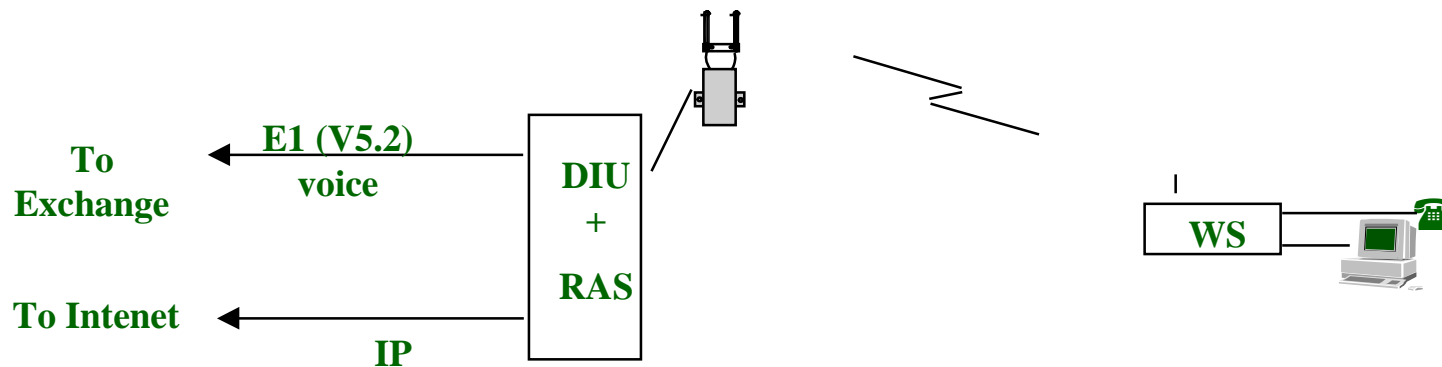
TeNeT Group's Efforts



TeNeT group's Vision

- Provide 200 million Telecom & Internet Connections in India's cities, small towns and rural areas
 - aim to bring down cost of Telecom and Internet connection
 - from Rs 30000 to Rs 10000 per line
- last five years of effort
 - incubated five product companies at IITM
 - developed a number of Access products
 - brought down costs to Rs 18000 per line

corDECT Wireless in Local Loop



■ simultaneous

- **35 / 70 kbps Internet access**
- **telephone connection supporting fax, PCO and speakerphone**
 - Rs 12,000 -----> Rs. 16,000 (for sparse rural areas)
 - Rs. 7000 with multiwallset
- **25 km coverage in rural areas using Relay Base Station**

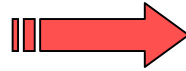


Vision and Strategy



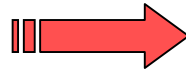
n-LOGUE's ...

Vision



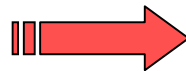
**Connect (voice and Internet)
Small Towns and Rural
Areas in India**

Reasons



**Existing Operators focussed
only on large cities – at most
in top 150 cities**

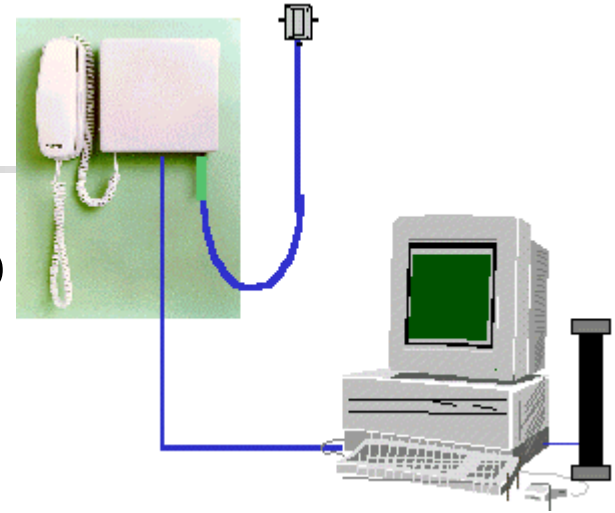
Our Focus



**All over India other than the
Top 150 Cities**

Key Technologies

- corDECT Wireless in Local Loop
- ISP in a box : Minnow
- Low cost PC
- Reliable power back-up



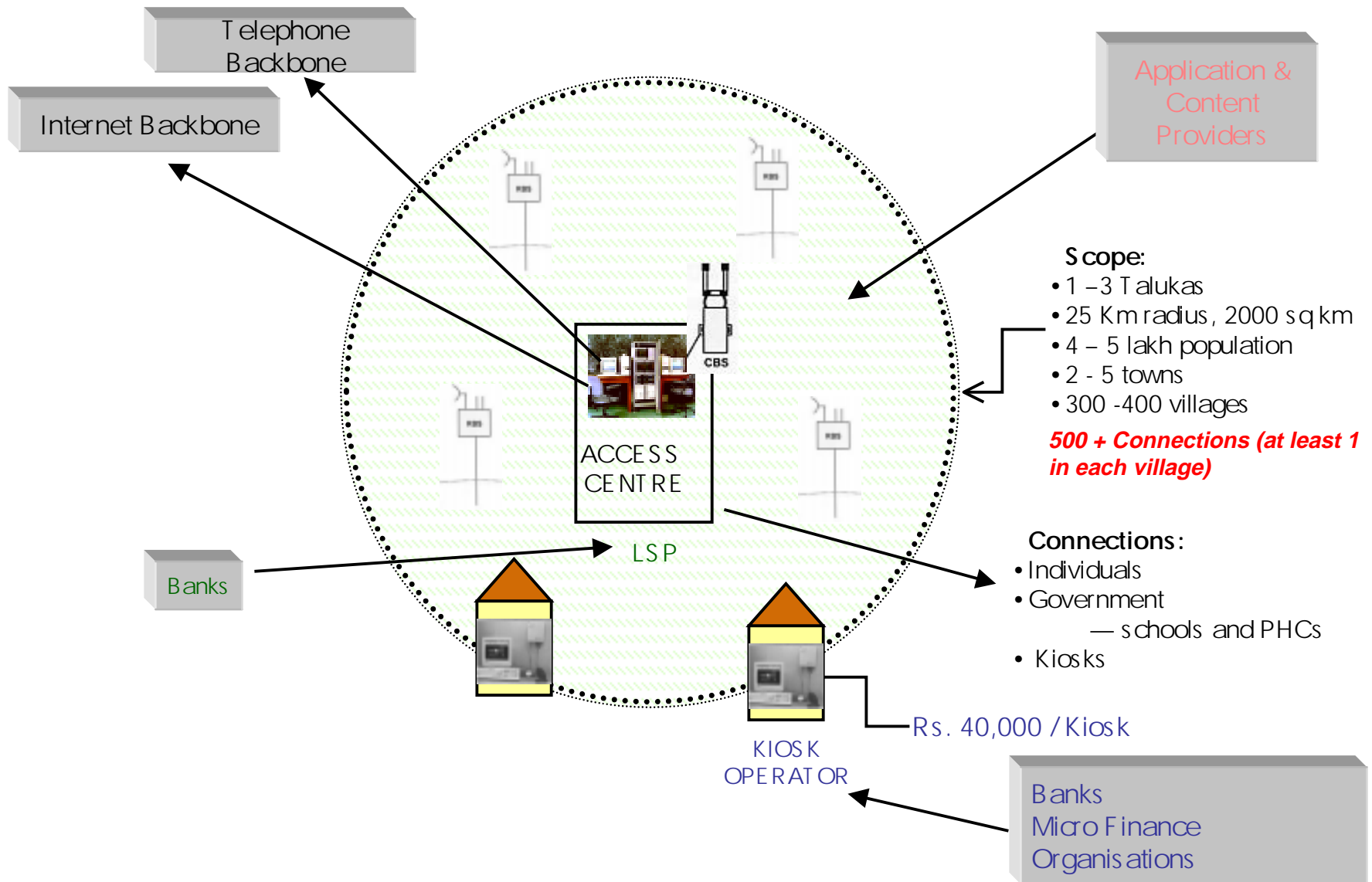
- **Rs 40,000 per Kiosk** providing telephone, Internet and a low-end Pentium PC with color monitor, speakers and microphone, 16 hour back-up for phone and 4 hour power back-up for PC
 - plus Indian language software



MODEL OF OPERATION ...

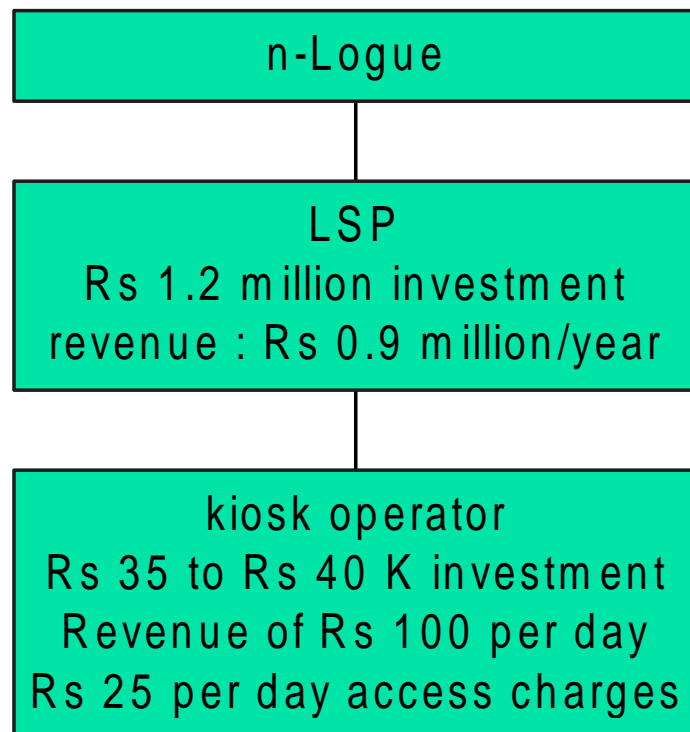
- n-Logue Sets-up Access Centres
 - Access Centres are managed by Managing Agencies
 - Local Service Operators (LSP)
 - like a cable TV operator
 - LSPs
 - Finds Subscribers
 - Installs the Wallsets
 - Maintains the equipment
 - Collects the revenue
 - Operates the Centres
 - Satyam Infoway is the Bandwidth Provider
 - operate as a franchise to BSNL or BSO

n-Logue Deployment Strategy





Economics for each Access Center



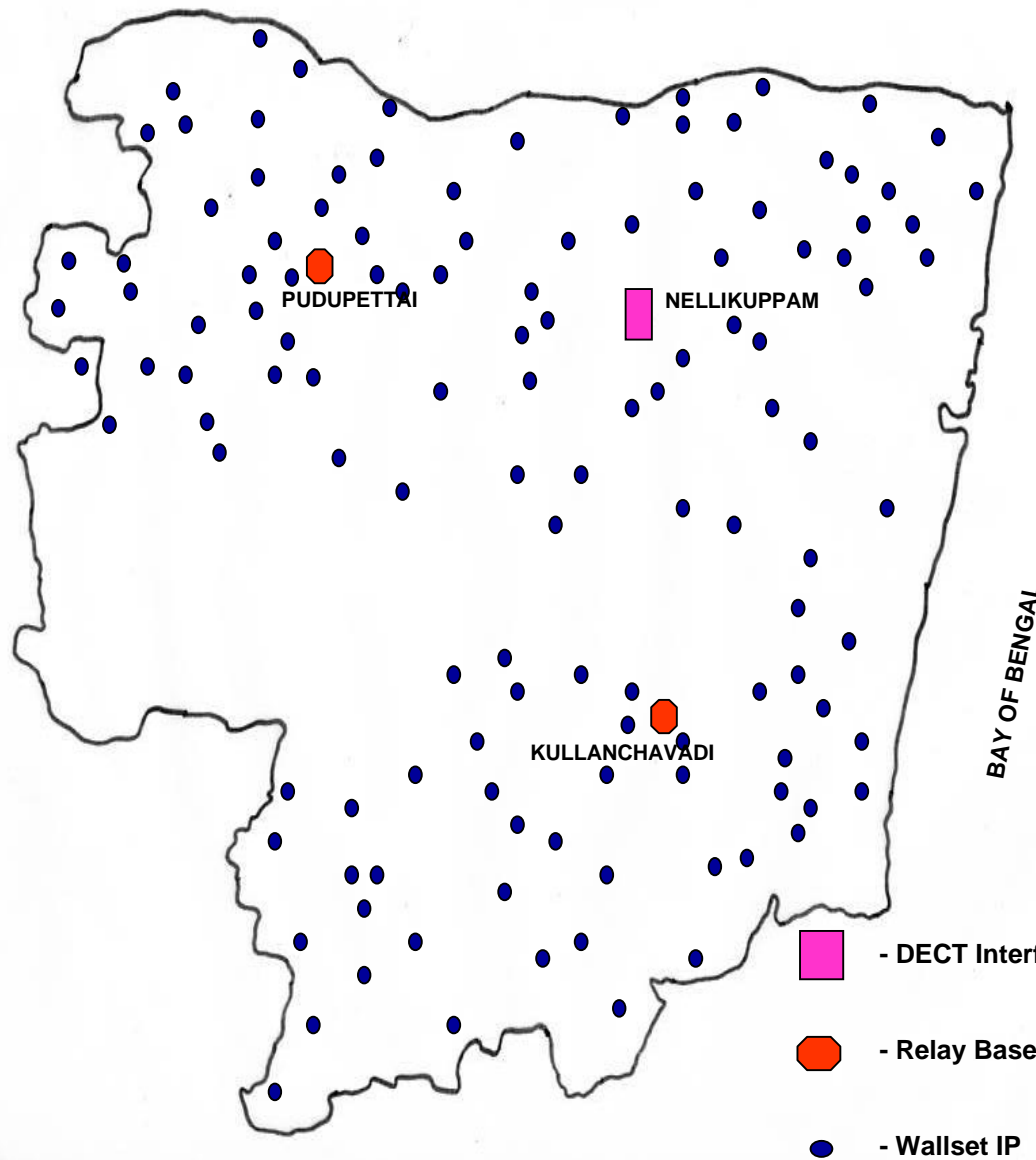
LSP wins if kiosk operator wins
n-Logue wins only if LSP and kiosk operator wins



Some Examples

n-Logue's

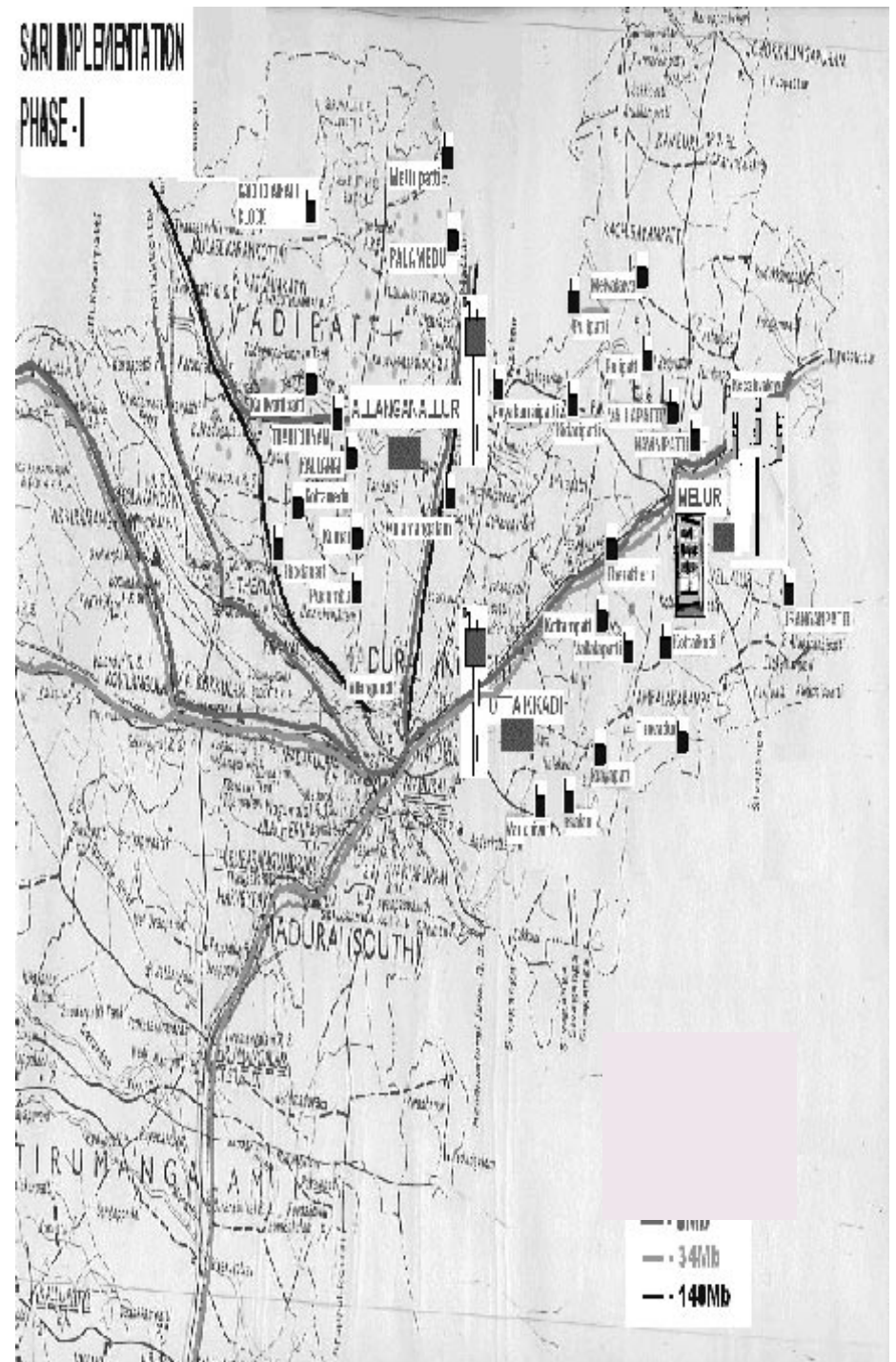
NELLIKUPPAM PROJECT, Cuddalore District



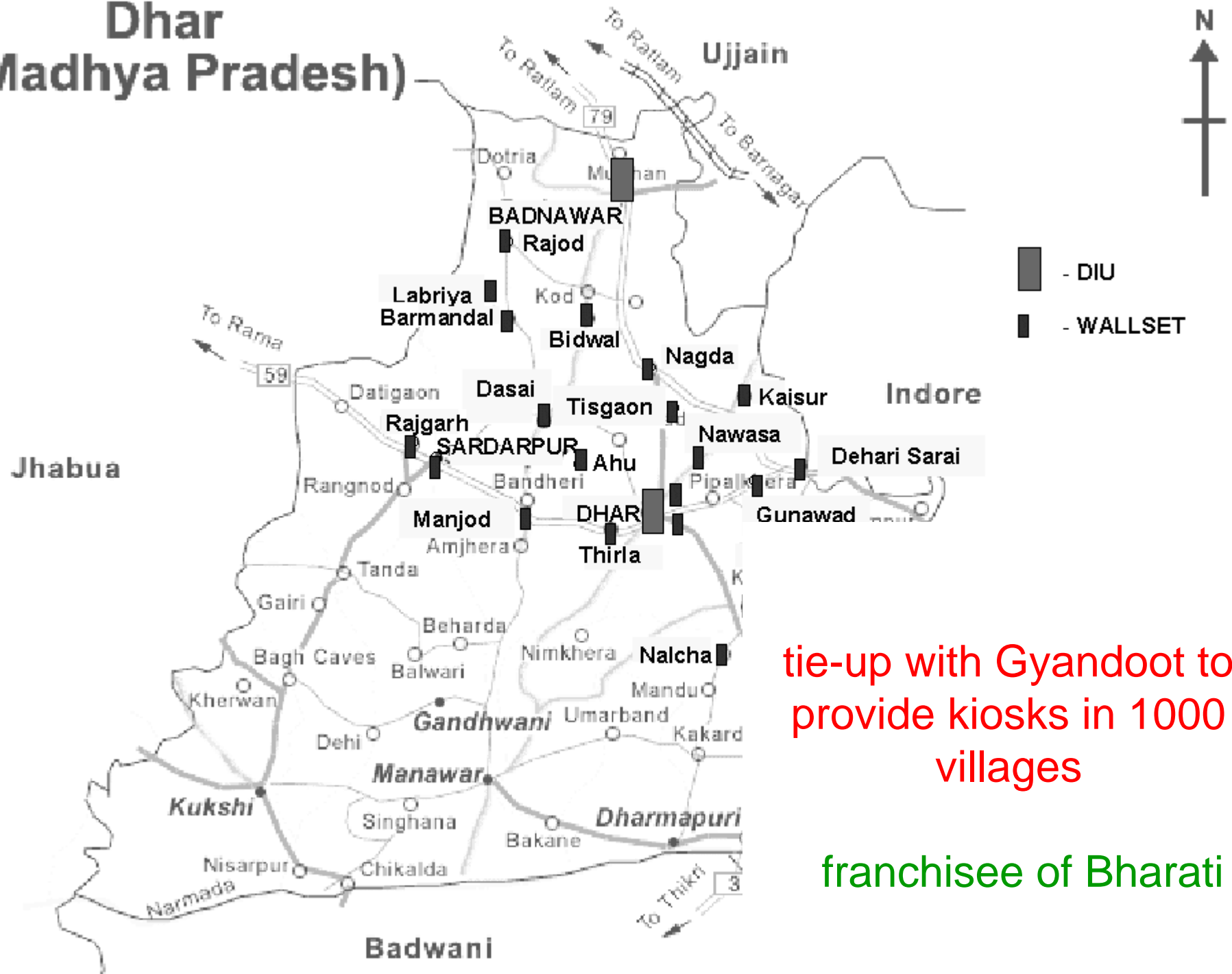
- sponsored by **EID Parry**
 - buys **sugarcane** and sells fertilizers, confectionery and cycles
 - telephone and Internet connection in 150 villages
 - **65 connections** provided
 - will be commercial soon

SARI Project

- Provide Telecom and Internet in every village of **Madurai** district
 - a local service partner operates the network
 - **DHAN Foundation**, a NGO working with villagers on micro-credit, provides support
- a joint project of MIT Media Labs, IITM, Harvard Univ, Mckinsey and I-Gyan



Dhar (Madhya Pradesh)





TARGET ...

About 50 Access Centres in the First Year

2,000 Access Centres in 3 ½ - 4 Years

- 1 Million Rural Subscribers

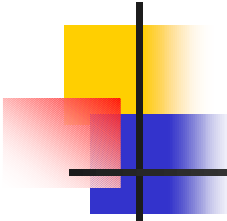


Contents and Applications

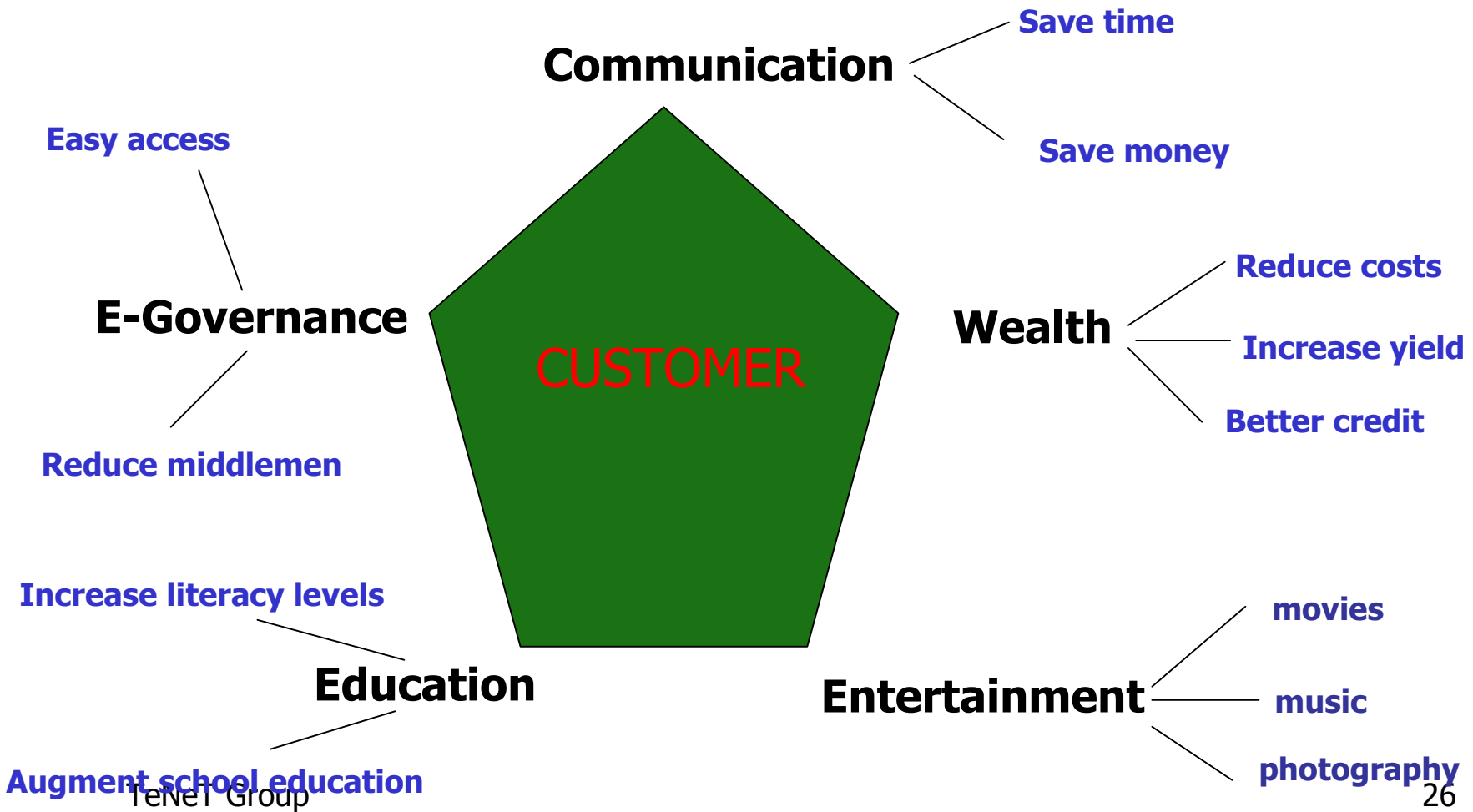


Rural Internet will Require

- **Contents and applications** in local language
 - remote **jobs** and **services**
 - **education, training, literacy**
 - **health and veterinary services**
 - communication and entertainment
 - commercial services, **micro-credit**, money orders and banking, agricultural management, forest products
 - **e-governance**
 - voice mail, video mail, voice enabled chats, bulletin board
 - **Development activities**
 - **Water harvesting, Inter-village chat**



CWE³ : Customer Needs



Spreadsheet in Tamil

Excel - [ExcelBook2]

கோப்பு தொகு பார்வை நுழை சீரமை சாளரம் உதவி

பக்கம்1

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2										
3			கடன் தொகை	மாதங்கள்	வட்டி (% திரும்பக்கொடுத்தது)					
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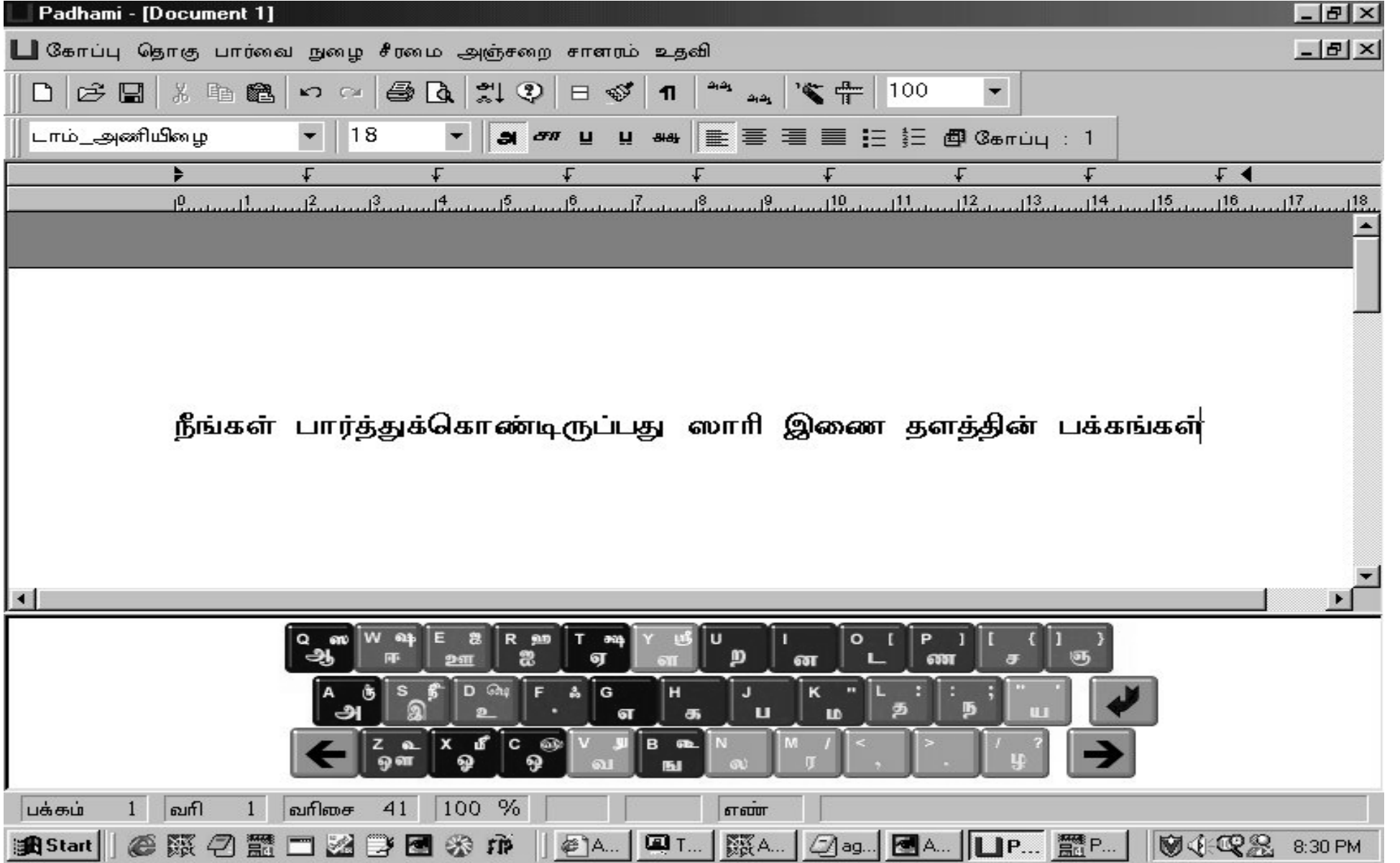
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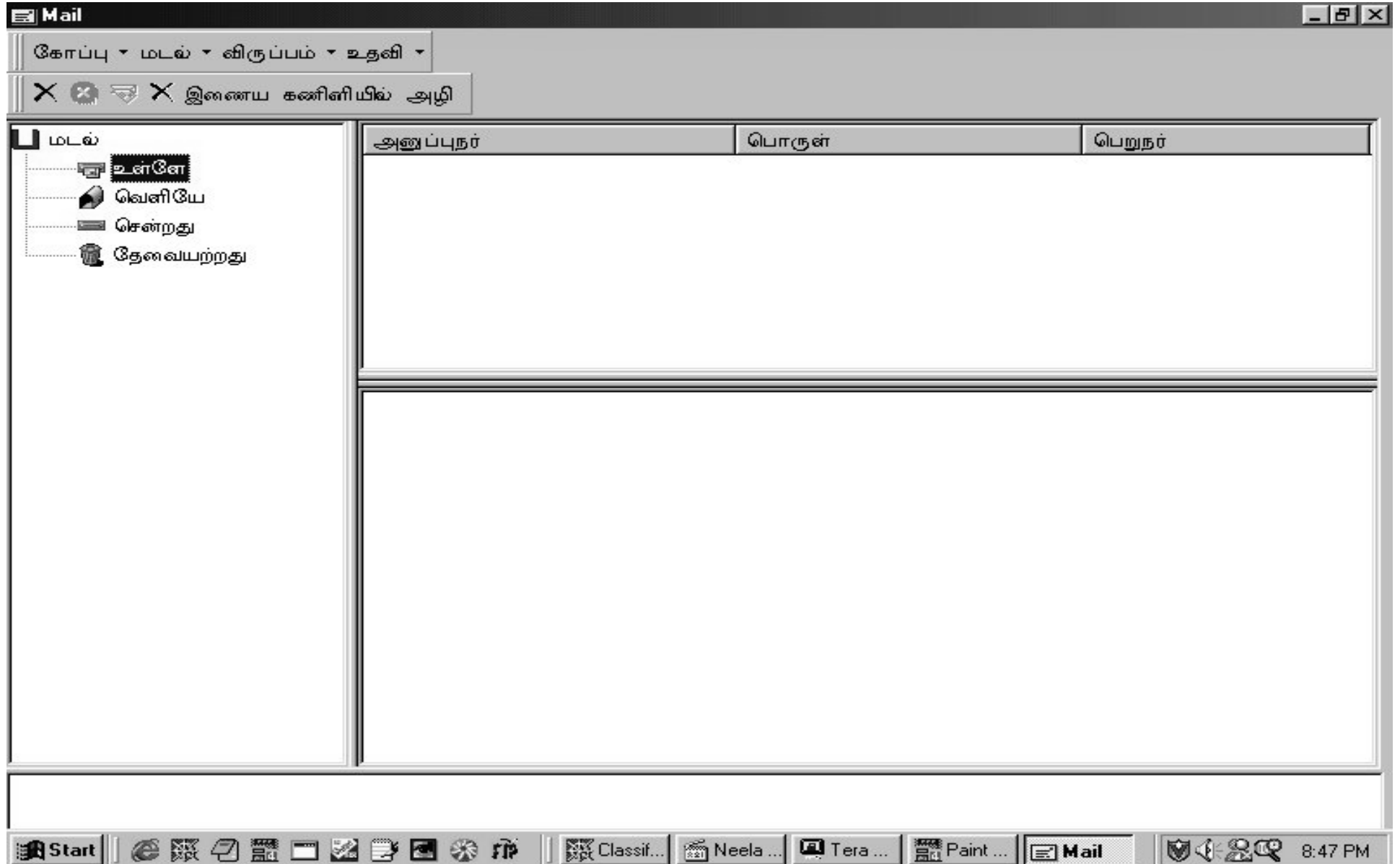
Start

8:42 PM

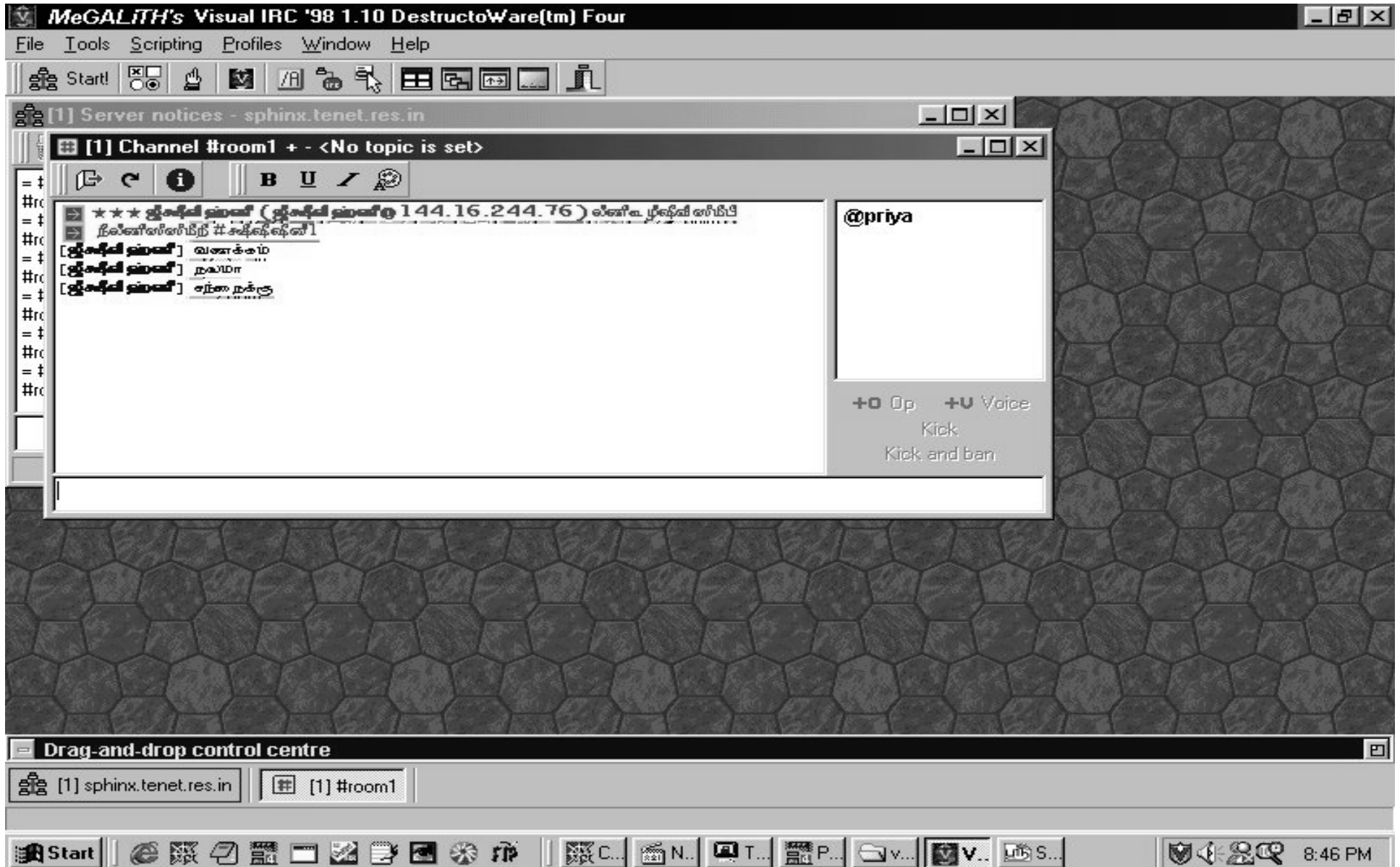
Word-processor in Tamil



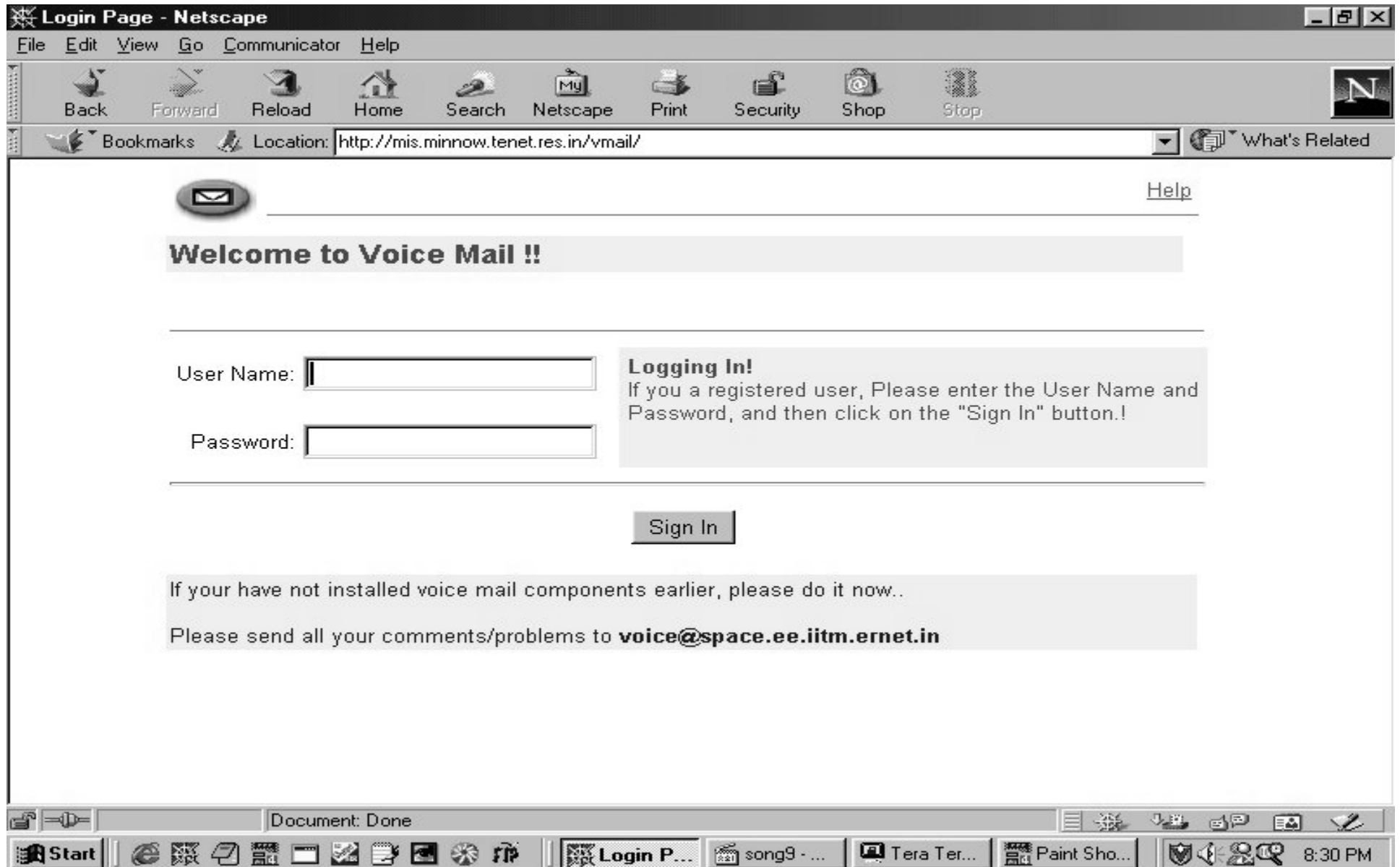
Mailclient in Tamil



Internet Relay Chat client in Tamil



Browser Based Voice Mail




The screenshot shows a Netscape browser window titled "Login Page - Netscape". The address bar contains the URL "http://mis.minnow.tenet.res.in/vmail/". The page content includes a "Welcome to Voice Mail !!" message, a "Logging In!" section with input fields for "User Name:" and "Password:", and a "Sign In" button. A "Help" link is located in the top right corner of the page content. At the bottom of the browser window, the Windows taskbar is visible, showing the Start button, several application icons, and the system tray with the time "8:30 PM".

Login Page - Netscape

File Edit View Go Communicator Help

Back Forward Reload Home Search Netscape Print Security Shop Stop

Bookmarks Location: What's Related

 [Help](#)

Welcome to Voice Mail !!

User Name:


































Password:

Logging In!
If you a registered user, Please enter the User Name and Password, and then click on the "Sign In" button.!

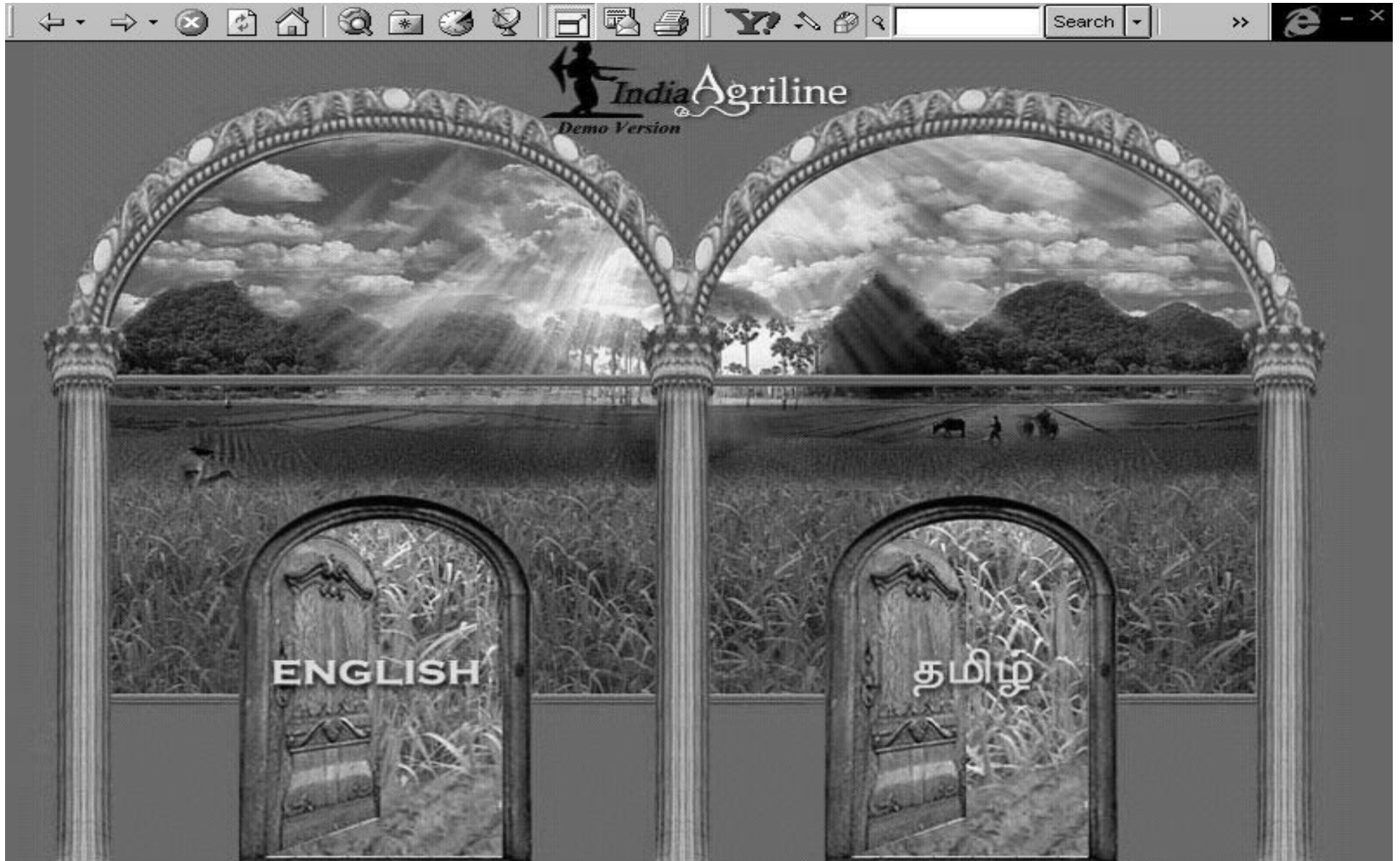
If your have not installed voice mail components earlier, please do it now..

Please send all your comments/problems to voice@space.ee.iitm.ernet.in

Document: Done

Start |                                  8:30 PM

India Agriline portal





To Sum Up

- Internet is Power
 - every village need to be connected at the earliest
 - n-Logue has the right approach and has a tremendous goodwill as it addresses a crying need
 - strong support from
 - state Governments
 - financial institutions
 - press and people
 - excellent technical support
- But the challenge is to make this happen in scale