TCIL experience
of
Tele-medicine Networks & operations
for
E-Health and m-Health Management

Government Industry Dialogue

New Delhi , November 24th, 2013

- **About TCIL**

- **e-Network Projects for Tele-medicine**

- **Rural Tele-medicine solution (e-Health/ m-Health)**

- **Conclusion**

Telecommunications Consultants India Limited

- Wholly owned Government of India Enterprise, TCIL was **set up in 1978** by the Department of Telecommunications **to share the Indian expertise in all fields of telecommunications globally.**

- An **ISO 9001: 2008 and IS14001:2004 certified** TCIL is a profit-making, Indian MNC having operated in **over 60 countries across the globe** (49 countries in Africa);

- Provides **Consultancy and Turnkey Project Execution Services,** from concept to commissioning, in the fields of Telecommunications, IT, and Civil & Architecture.

- **Consistent Track Record**

Domains

Range of Services

- ✓ Turnkey implementation
- ✓ Consultancy,
- ✓ Feasibility studies
- ✓ Planning,
- ✓ Design,
- ✓ Engineering,
- ✓ Construction
- ✓ Supervision
- ✓ Quality Assurance
- ✓ Lender Engineering
- ✓ Third Party Audit
- ✓ Project Management
- ✓ Execution
- ✓ Capacity Building & Training
- ✓ O&M

Telecommunication

- Wire Line Projects
  - ➤ Optical Fibre Network;
  - ➤ FTTH,
  - ➤ OPGW,
  - ➤ Submarine cable
- Wireless Projects
  - ➤ Mobile communication
  - ➤ 3G, 4G Networks
  - ➤ Secured communication Tetra,
  - ➤ EMF Audits

Managed Services

- Co-location Services
- E-procurement
- Videoconferencing
- Authentication service

New Initiatives

- Renewable Energy
- E-waste Management

Information Technology

- Data Centres,
- Broadband Networks
- e-Networks
  - ➤ Tele Education
  - ➤ Tele Medicine
  - ➤ e-governance
- Security and Surveillance
- Authentication Services,
- IPV6
- Disaster Management

Civil & Architecture

- Construction of Buildings and Roads
- Cyber parks

Corporate Social Responsibility

60 Countries where TCIL is currently present

AFRICA (49)

Algeria	Benin	Botswana	Burundi
Burkina Faso	Cameroon	Cape Verde	C.A.R
Chad	Comoros	Cote d'Ivoire	Congo
Djibouti	D.R.Congo	Egypt	Eritrea
Ethiopia	Gabon	Gambia	Ghana
Guinea	Guinea Bissau	Kenya	Lesotho
Libya	Liberia	Madagascar	Malawi
Mali	Mauritania	Mauritius	Mozambique
Nigeria	Niger	Namibia	Rwanda
Sao Tome Principe	Senegal	Seychelles	Sierra Leone
Somalia	Sudan	South Sudan	Swaziland
Tanzania	Togo	Uganda	Zambia
Zimbabwe			

ASIA (11)

Afghanistan	Bahrain	Bhutan	India
Kuwait	Myanmar	Nepal	Oman
Qatar	KSA	UAE U.A.E.	

Major Projects: Overseas

Telecommunication Networks

- **Modernization of Telecommunication Network** of Sierra Tel of **Sierra Leone** : **USD 30.0 Million**

Tele-education and Tele-medicine Networks

- **Pan-African e-Network Project** for Tele-education, Tele-medicine and VVIP Connectivity in all 54 countries of Africa, for Ministry of External Affairs, Govt. of India; **INR 5.429 Billion (USD 116 Mn)**

- Turnkey implementation of **Tele-medicine Network in SAARC member countries** for Ministry of External Affairs, Govt. of India

Fibre to Home Projects

- **Fiber-To-The-Home (FTTH)** project for the MoC **Kuwait, KSA, UAE, Oman** worth **USD 21.5 Million**

Optical fibre Network Projects

- Building **500-km OFC network** (between Moreh, India and Mandlay) for **Myanmar**, and supplying ADSL2+ Modems: **USD7 M**

Satellite Networks

- Supply and Installation of **Satellite Hub and 500 VSATs in Nepal:** USD 3 Mn

IT Projects

- **Setting Up of ICT Departments** for SMT Engg. Co., **Sudan; US$ 17.5 Million**

Consultancy Projects

- Consultancy for **Formulation of Telecommunication standardization Road map** covering policy, regulation and licensing , Telecom Infrastructure, Telecom Standardization and type approval, spectrum management and frequency planning for **Ministry of Telecom Ethiopia**

- Project Management Consultancy for setting up of four buildings of **Cyber Park** at Sidi Abdellah, Algiers **Algeria**

- Development of **ICT Security and Audit Policy for EICTDA**, **Ethiopia**:

- **SASEC Information Highway Project** for Bhutan and Nepal (Funded by ADB)

Major Projects: India

Satellite Projects

- Supply of **5000 Digital Satellite Phone Terminals** along with Hub to **BSNL USD 7.2 Million**

Optical Fibre Ground wire (OPGW) Projects

- Supply installation and commissioning of **OPGW for AP Transco USD 2.7 Million**

Vessel Traffic Monitoring

- **Vessel Traffic Service in the Gulf of Kutchh, Gujarat** for DG Lighthouses and Lightships, Ministry of Shipping, Govt. of India: **USD 25.7 Mn**

Education/ Tele-education Projects

- ICT School Project in **1500 schools in Uttar Pradesh** : Rs. 2.91 billion
- ICT school Project for setting up of lab infrastructure **591 schools in 3 districts of Orisha** for Rs. 1.07 billion
- ICT school Project for setting up of lab infrastructure **1110 schools for Govt. of Delhi** for Rs. 2.15 billion
- Establishment of **Virtual University for University of Madras**, on turnkey basis: **USD 2.0 Mn;**

Secured Communication Networks

- **Implementation of TETRA Network for Government of Delhi**
- **Modernization of Communication Network** for **Jharkhand Police**

Major Projects: India

IT & Broadband Infrastructure

- **National Internet Backbone (NIB)** – Project 3, of **BSNL**, Expansion order for INR 1.630 Billion **(~ USD 37 Mn)**

- Turnkey implementation of **Telecom, IT and Networking Projects** for **Commonwealth Games Delhi** 2010: **USD 20 Mn**

- **e-Governance (State Wide Area)** Networks in **5 States of India** (Jharkhand, Meghalaya, Orissa, U.P., A.P.): Total capital outlay

Consultancy Projects

- **Sardar Sarovar Canal Automation Project**

- **Railtel** for project of **optical fiber laying** on **11267 RKm on PPP basis**

- **Railtel** for the project of broadband rollout **on PPP basis**.

- **EMF Radiation Measurement** and Audit of Telecom Towers for Telecom Regulatory Authority of ndia :
- Technical and Financial Consultancy services for **Optical Fiber Network Augmentation**
  - West Bengal , Sikkim and Andaman & Nicobar Islands,
  - North East: Assam, Arunachal Pradesh, Manipur, Meghalaya, Mizoram, Nagaland & Tripura,

TCIL

e-Network Projects
of
Tele-medicine

TCIL has implemented e-Networks for delivering Tele-Medicine and Continued medical education Services

- **Pan African e-Network Project**

- **Ethiopia Pilot Project**

- **SAARC e-Network Project**

- **Onco-Net Project**

Similar e-Networks for delivering Tele-Medicine Services in pipelines

- **ASEAN e-Network Project**

- **EURASIA e-Network Project**

- **PSIDS e-Network Project**

- **CARICOM e-Network Project**

Pan-African e-Network Project
- A practical example of South-South Cooperation

- Initiative of Government of India in collaboration with African Union

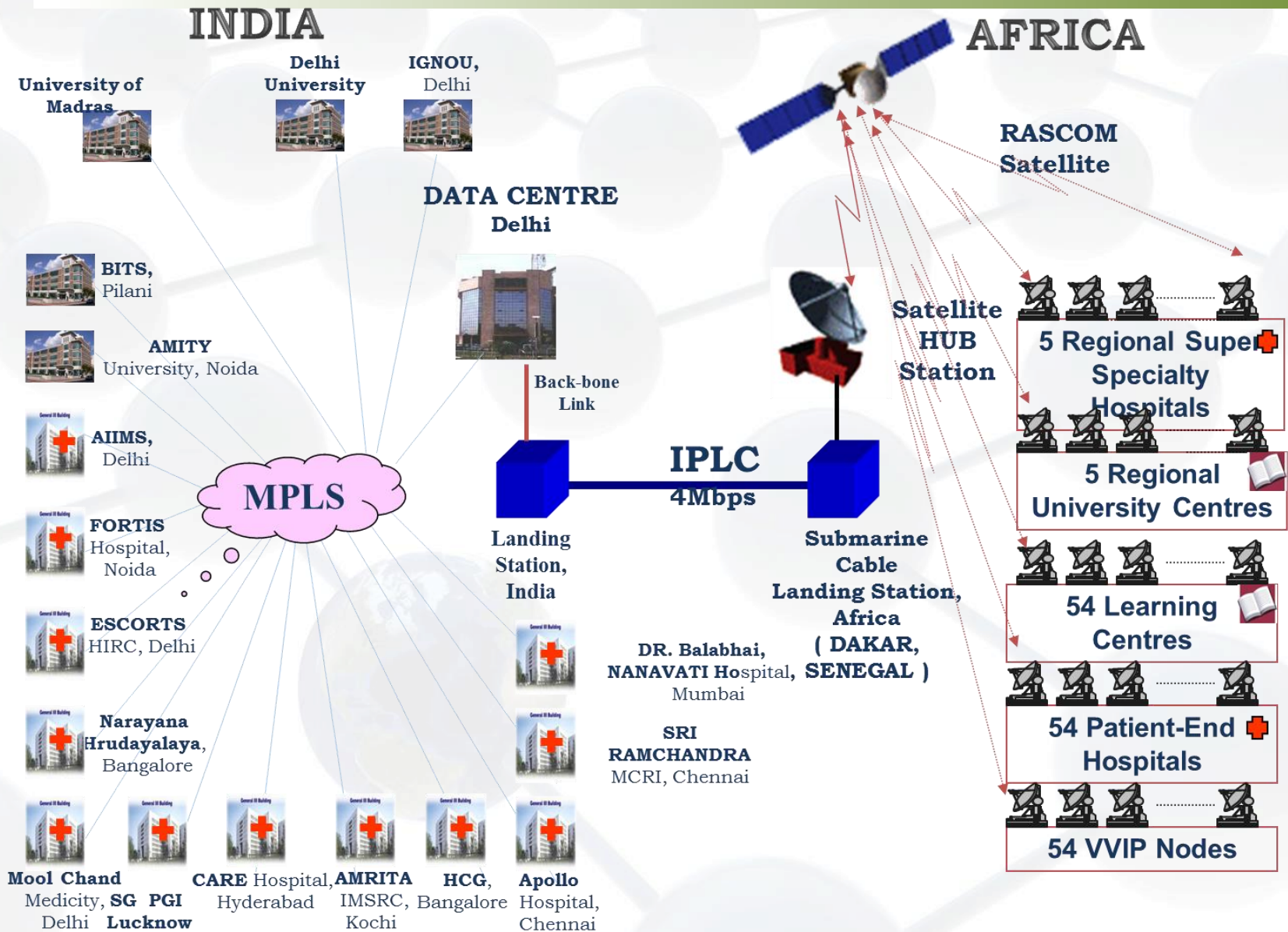Non-commercial project, **funded by the Govt. of India at a budgetary cost of USD116 Mn**

- Govt. of India funded e-Service Network Project for **providing Tele-education , Tele-medicine services** from identified universities and Super Specialty hospitals from India and Africa and **VVIP connectivity (video-conferencing and VoIP among the Heads of African States)**

- Brain Child of Dr. A P J Abdul Kalam, the former President of India who, during his inaugural address to the African Parliament in Johannesburg on 16th Sep. 2004, **proposed to connect all 53 African** countries with Indian institutions with a satellite and fibre-optic network **to share India's expertise in the fields of Education and Health care for** accelerated socio-economic development of Africa.

- **Successful collaborative Initiative of Govt. of India and African Union Commission**.

- **TCIL as the turnkey implementing Agency of the project network**

ARCHITECTURE OF PAN-AFRICAN e-NETWORK

INDIA

AFRICA

University of Madras

Delhi University

IGNOU, Delhi

RASCOM Satellite

DATA CENTRE Delhi

BITS, Pilani

AMITY University, Noida

AIIMS, Delhi

FORTIS Hospital, Noida

ESCORTS HIRC, Delhi

Narayana Hrudayalaya, Bangalore

MPLS

Back-bone Link

Landing Station, India

IPLC 4Mbps

Satellite HUB Station

Submarine Cable Landing Station, Africa (DAKAR, SENEGAL)

5 Regional Super Specialty Hospitals

5 Regional University Centres

54 Learning Centres

54 Patient-End Hospitals

54 VVIP Nodes

DR. Balabhai, NANAVATI Hospital, Mumbai

SRI RAMCHANDRA MCRI, Chennai

Mool Chand Medicity, SG PGI Delhi Lucknow

CARE Hospital, Hyderabad

AMRITA IMSRC, Kochi

HCG, Bangalore

Apollo Hospital, Chennai

ARCHITECTURE OF PAN-AFRICAN e-NETWORK

Status of Pan African e-Network

- **Common Network infrastructure commissioned in 2008-09**
  - ➢ **Satellite HUB STATION**: Operational since April 2008.
  - ➢ **IPLC** end-to-end commissioned in Aug 2008; upgraded to 4 Mbps in March 2009;
  - ➢ **Data Center, India at TCIL Bh**awan, New Delhi Operational since September 2008
  - ➢ **Network inaugurated on 26 Feb 2009 and Tele-education, Tele-medicine, CME services started** with commissioning of network 11 countries, 3 Indian Universities and 6 Indian SSH.
- **Country Networks**
  - ➢ **Commissioned in all 48 African countries who have signed agreement for Pan African e-Network project**

Learning Centers	48
Patient End Hospitals	49
VVIP	43
RUC	05
RSSH	05

48 Countries of African Union have joined the Project

1. Benin
2. Botswana
3. Burkina Faso
4. Burundi
5. Cameroon
6. Cape Verde
7. CAR
8. Chad
9. Comoros
10. Congo
11. Cote d'Ivoire
12. D.R. of Congo
13. Djibouti
14. Guinea-Bissau
15. Egypt
16. Eritrea
17. Ethiopia
18. Gabon
19. The Gambia
20. Ghana
21. Guinea
22. Kenya
23. Lesotho
24. Liberia
25. Libya

26. Madagascar
27. Malawi
28. Mali
29. Mauritania
30. Mauritius
31. Mozambique
32. Namibia
33. Niger
34. Nigeria
35. Rwanda
36. Sao Tome and Principe
37. Senegal
38. Seychelles
39. Sierra Leone
40. Somalia
41. South Sudan
42. Sudan
43. Swaziland
44. Tanzania
45. Togo
46. Uganda
47. Zambia
48. Zimbabwe

Indian Super Specialty Hospitals providing Tele-Medicine & CME services

1. **All India Institute of Medical Sciences** (**A.I.I.M.S.**) **Delhi**

2. **ESCORTS** Heart Institute and Research Center, **New Delhi**

3. **MOOLCHAND Hospital, New Delhi**

4. **FORTIS** Hospital, **Noida**

5. **APOLLO** Hospitals, **Chennai**

6. **SRI RAMCHANDRA** Medical College and Hospital, **Chennai**

7. **NARAYANA HRUDAYALAYA**, **Bangalore**

8. **HEALTH CARE GLOBAL** Enterprises, **Bangalore**

9. **CARE** Hospitals, **Hyderabad**

10. Amrita Institute of Medical Sciences (**AIMS**), **Kochi**

11. Dr. Balabhai **NANAVATI** Hospital, **Mumbai**

12. **Sanjay Gandhi** PGI Lucknow

1.   Indira Gandhi National Open University (**IGNOU**), New Delhi

2.   **University of Madras**, Chennai

3.   **University of Delhi**, New Delhi

4.   Birla Institute of Technology & Science (**BITS**), Pilani

5.   **AMITY** University, Noida

Regional Super Specialty Hospitals

1. **Ibadan Hospital** – **Nigeria**

2. **Brazzaville Hospital –** Republic of **Congo**

3. **Sir Seewosagur Ramgoolam National Hospital, Mauritius**

4. **Alexandria University Hospital, Egypt**

5. **Fann Hospital, Senegal**

Leading Regional Universities

1. **Makerere University – Uganda**

2. **Kwame –Nkrumah** University of Science & Technology- **Ghana**

3. **University of Yaounde, Cameroon**

4. **Alexandria University, Egypt**

5. **Chancellor College of University of Malawi , Malawi**

- Construction of **Hub Station Building**

- **Supply, Installation & Commissioning** of:

  - Satellite **Hub** Station
  - **VSATs** in 172 locations in Africa
  - **Data Center** and Studio Set up in TCIL HQ
  - Data Center at the Satellite Hub Station

  - **ICT Equipment** (Computer hardware, system software, networking equipment, studio equipment and UPS) **at 173 locations** in Africa (48 LC,48 PEL, 47 VVIP Node, 5 RUC, 5 RSSH and 1 DC at hub) and 18 locations in India (5 UC, 12 SSH and DC at Delhi)

  - **Medical Equipment** at 49 Patient-end Hospitals

  - Tele-Ed and Tele-Med **Application Software**

- Operation & Management & **AMC support** for the network for 5 yrs

- **Tele-Education and Tele-Medicine services from Indian Universities and Hospitals for 5 years**

DIAGNOSTIC EQUIPMENTS:

- Portable **X-Ray Machine**

- X-Ray Film **Scanner-Digitizer** (DICOM 3.0 Compliant)

- 12-lead **ECG** Machine

- **Ultra-sound** Machine with **color Doppler** (DICOM 3.0 Compliant)

- **Defibrillator - AED** (Automated External Defibrillator)
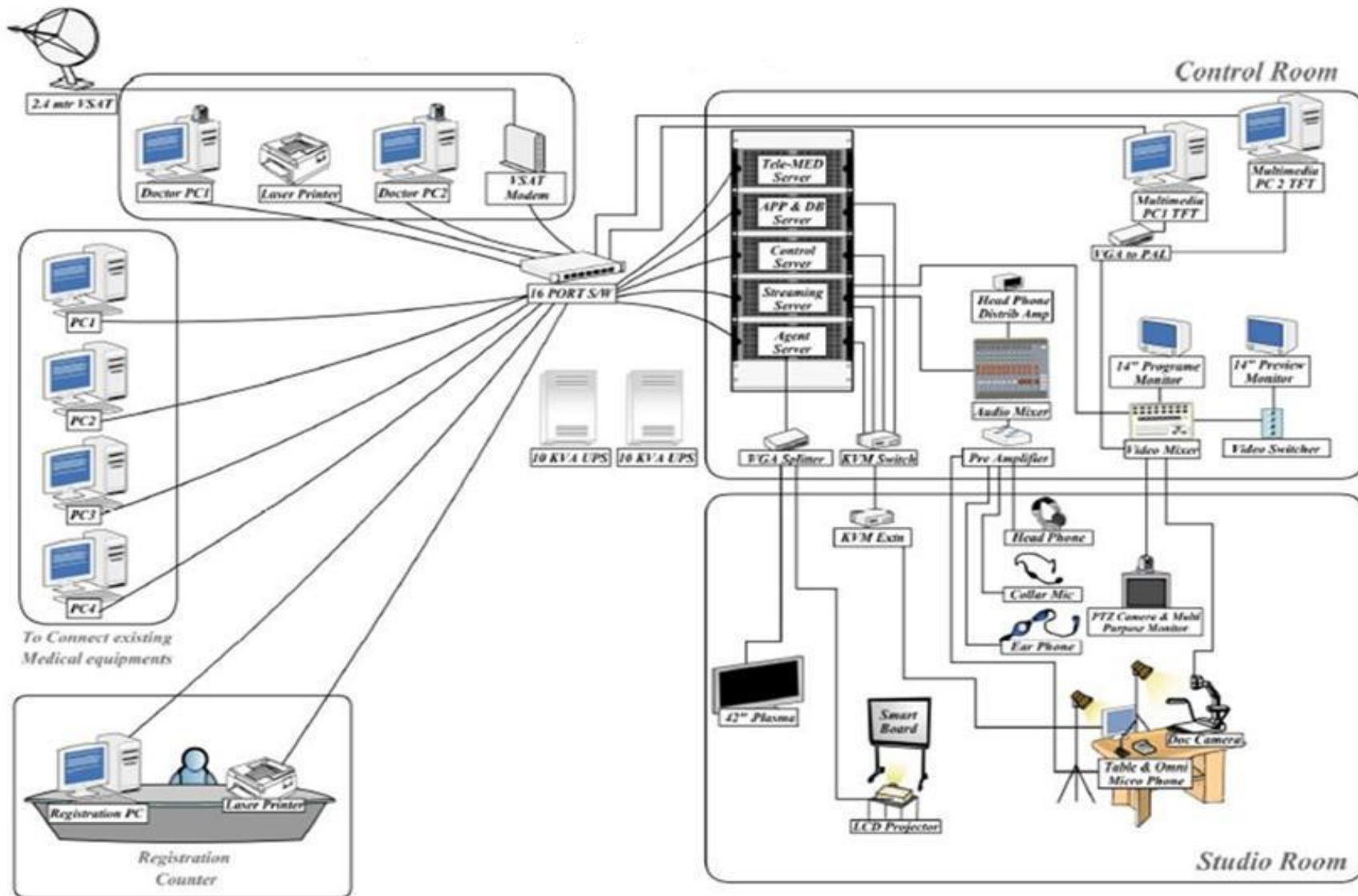
PATHOLOGICAL EQUIPMENTS:

- **Glucometer**/Blood Analyzer

- **Urine Analyzer**

- Blood Pressure Measuring Instrument

- **Tele-Pathology Microscope** with built-in Digital Camera

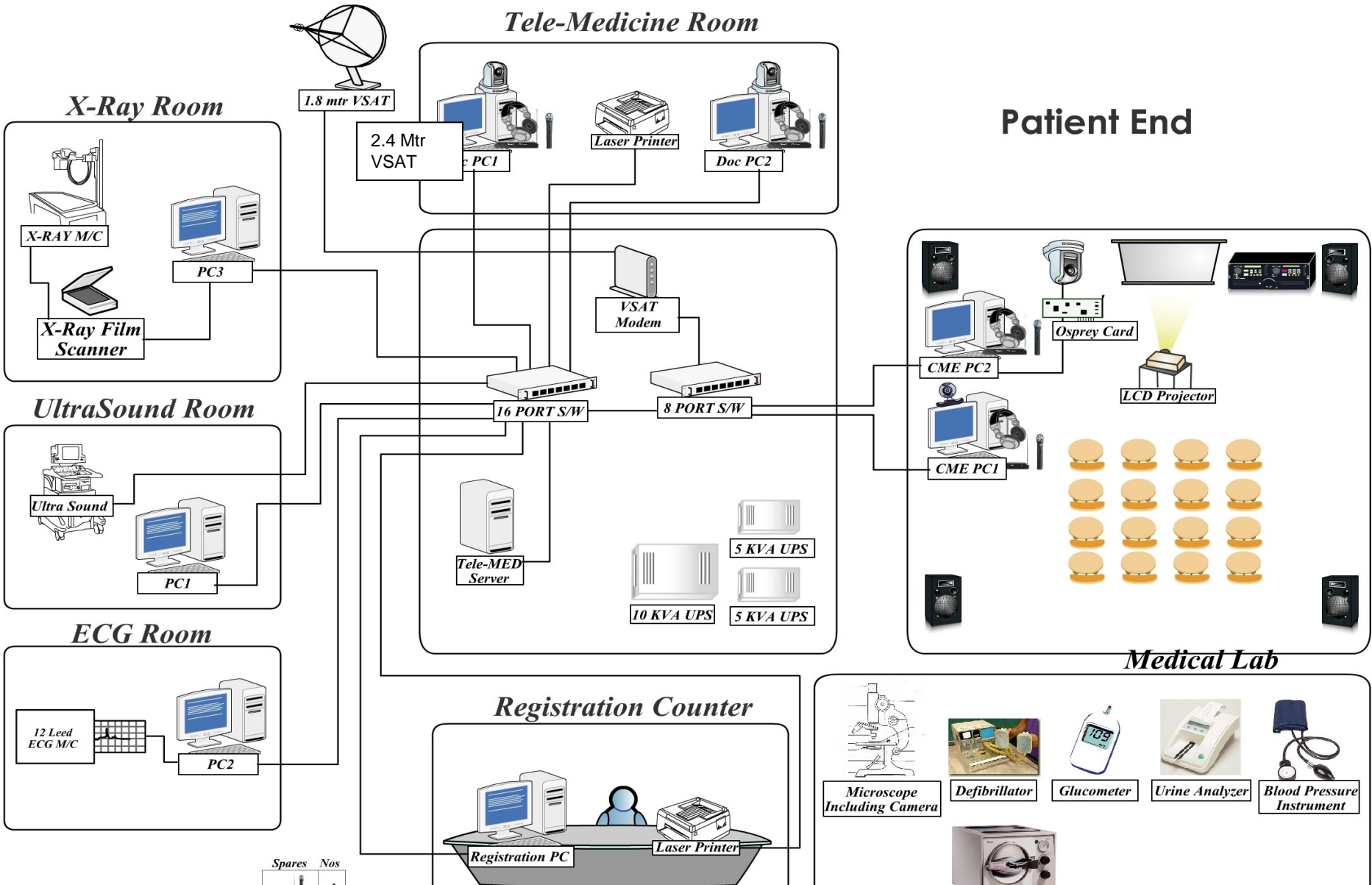- Sterilizer/ **Hot air oven**

Services Offered

- Special Lectures
- Tele-Consultatioins
- Tele-Education
- CME
- VVIP Communication

X-Ray Room

X-RAY M/C

X-Ray Film Scanner

PC3

UltraSound Room

Ultra Sound

PC1

ECG Room

12 Leed ECG M/C

PC2

1.8 mtr VSAT

2.4 Mtr VSAT

Tele-Medicine Room

Doc PC1

Laser Printer

Doc PC2

VSAT Modem

16 PORT S/W

8 PORT S/W

Tele-MED Server

5 KVA UPS

10 KVA UPS

5 KVA UPS

Registration Counter

Registration PC

Laser Printer

Spares   Nos

Patient End

CME PC2

Osprey Card

LCD Projector

CME PC1

Medical Lab

Microscope Including Camera

Defibrillator

Glucometer

Urine Analyzer

Blood Pressure Instrument

Tele-medicine components:

- **Online medical consultation** for **one hour everyday to each country for 5 years**

- **Offline advice for 5 patients per day to each country** for 5 years

- **Continuing Medical Education (CME)** for practicing Doctors and working Nurses/Physicians' Assistants, to update their medical knowledge and upgrade their clinical skills.

Capacity building by way of imparting
Education to 10,000 African students over 5 year period
(2009-14):

2000 in PG Programs,
3000 in UG Programs and
5000 in skill enabling Certificate, Diploma and PGD Programs

- **Sessions from Indian Hospitals have been started for all countries on regular basis from 22nd April 2009**;

- Schedule for CME sessions is circulated in advance and also made available on the project website: www.panafricanenetwork.com

- **3,350 CME Sessions** have been conducted which includes 310 sessions in French

  20 to 50 doctors attend the live CME Sessions

- **535 Online Medical consultations** have taken place.

- General (Internal) Medicine
- Radiology
- Adult Cardiology
- Pediatric Cardiology
- Neurology
- Dermatology
- Endocrinology
- Infectious Diseases/HIV-AIDS
- Gastroenterology
- Nephrology

- Pathology
- Psychiatry
- Pediatrics
- Medical Oncology
- Urology
- Genetics
- Gynecology
- Ophthalmology

Project Organization

- **Funding and Control : Ministry of External Affairs**, Govt. of India
- **Sensitization, coordination, review : African Union Commission**
- **Project Management : TCIL** covering design, supervision of supply, installation, commissioning and O&M of the network, management of delivery of education and medical services
- **Education and Medical Services providers**:
  - 17 Super Specialty Hospitals (India – 12, Africa – 5)
  - 10 Universities (India – 5, Africa – 5)
  - **Specialist doctors** of India and Africa
  - **Educational experts/professors** of India & Africa,
- **Infrastructure development and maintenance : Equipment suppliers and software developers**
- **Country Coordination : National Coordinators**, consignees, university coordinators, medical coordinators of African countries
- **Beneficiaries**
  - **Beneficiary doctors, patients, nurses, paramedical staff, students,** equipment operation staff in 48 African countries

First Inaugural Special Lectures was delivered by Hon'ble Former President of India Dr APJ Abdul Kalam, held on 23 May 2012 on the topic "Target 3 Billion People"

Dr. Sam Pitroda, Advisor to Prime Minister of India delivering second special lecture to African Nations on Public Information and Infrastructure on 31 July, 2012

- **Seychelles experience** – actual reduction in health budget anticipated

- **Senegal experience-** Patients saving on anxiety and expenditure

- **Ethiopia-** CME a run away success !

- **Reduced Expenditure** of Medical tourism to India for follow up treatment

- **Africa –** Demand for extending TE and TM in Rural Areas
  - **A PPP** Model

Awards
Bestowed
On
Pan African e-Network project

RENCONTRE NATIONALE DES DIRECTEURS DE L'INNOVATION

HERMÈS DE L'INNOVATION
2010

LES HERMÈS DE L'INNOVATION VISENT À HONORER LES ENTREPRISES OU ORGANISATIONS AYANT RÉUSSI À INTÉGRER LE MEILLEUR ÉTAT DES CONNAISSANCES DANS DES PRODUITS ET SERVICES ALLANT PLUS LOIN DANS LA SATISFACTION DES INDIVIDUS ET DE LA SOCIÉTÉ.

ILS SONT INSPIRÉS DE L'ESPRIT HUMANISTE DE LA RENAISSANCE, QUI FAIT DE L'HOMME LA MESURE DE TOUTE CHOSE, ET L'AMÉLIORATION DE SA CONDITION L'OBJECTIF DE TOUTE INNOVATION DANS UNE DYNAMIQUE DE PROGRÈS ET DE DÉVELOPPEMENT HUMAIN.

LES HERMÈS DE L'INNOVATION SONT DES PRIX D'EXCELLENCE, QUI RÉSULTENT DE L'ANALYSE MULTICRITÈRE D'INNOVATIONS MARQUANT UNE AVANCÉE DANS UN DES QUATRE GRANDS DOMAINES DE LA SYNTHÈSE CRÉATIVE HUMANISTE :

- CONDITION HUMAINE,
- RELATION ENTRE LES HOMMES,
- DEVENIR DE LA CITÉE,
- DÉVELOPPEMENT HUMAIN DURABLE

DANS LA MYTHOLOGIE GRECQUE, HERMÈS, DIEU DE L'INTELLIGENCE INDUSTRIEUSE ET RÉALISATRICE SOUTIENT LES ENTREPRISES DES HOMMES DONT IL EST LE MÉDIATEUR AUPRÈS DES AUTRES DIEUX.

DÉVELOPEMENT HUMAIN DURABLE
PAN-AFRICAN E-NETWORK

PROFESSEUR
MARC GIGET

CLUB DE PARIS
DES DIRECTEURS
DE L'INNOVATION

Newzy
UN BUSINESS D'AVANCE

Abidjan, 23rd February 2010

To the General Manager,

PANAFRICAN E-NETWORK

Object : Congratulations

Dear Sir,

The 6th edition of **AFRICA TELECOM PEOPLE** (ATP) took place on the 12th February 2010 at the Palais des Congrès of Paris, and was the occasion to celebrate telecommunications in Africa once more. Experts and governments representatives took part to this edition, through the MEETING (conferences presented by professionals and sponsors) and the AWARDS, which reward every year companies/personalities of telecommunications in Africa that showed the best achievements.

On the occasion of the Awards ceremony, PANAFRICAN E-NETWORK won the Award of **Best Development Initiative for Africa** for the year 2009. We congratulate you for this distinction.

The Africa Telecom People Award comes to consecrate your merits and efforts to contribute to a faster development of the continent through telecommunications. And we hope that it will be an additional motivational tool for you in the search for quality for your citizens.

We send herewith this award to you, which represent the imprint of PANAFRICAN E-NETWORK in the world of telecommunications in Africa in 2009.

We wish you a happy and prosperous new year.

SAFEP COMMUNICATION
Africa TELECOM PEOPLE
SERVICE COMMERCIAL
8-10 Av. Joseph Anoma Tout BIAO 13è Etage
Tél: 20 30 00 71 - Fax 29 30 00 72

Oswald LOUEKE

Executive Producer

Africa Telecom People

SNAPSHOTS OF INSTALLATION SITES

22/11/2008

29/09/2008

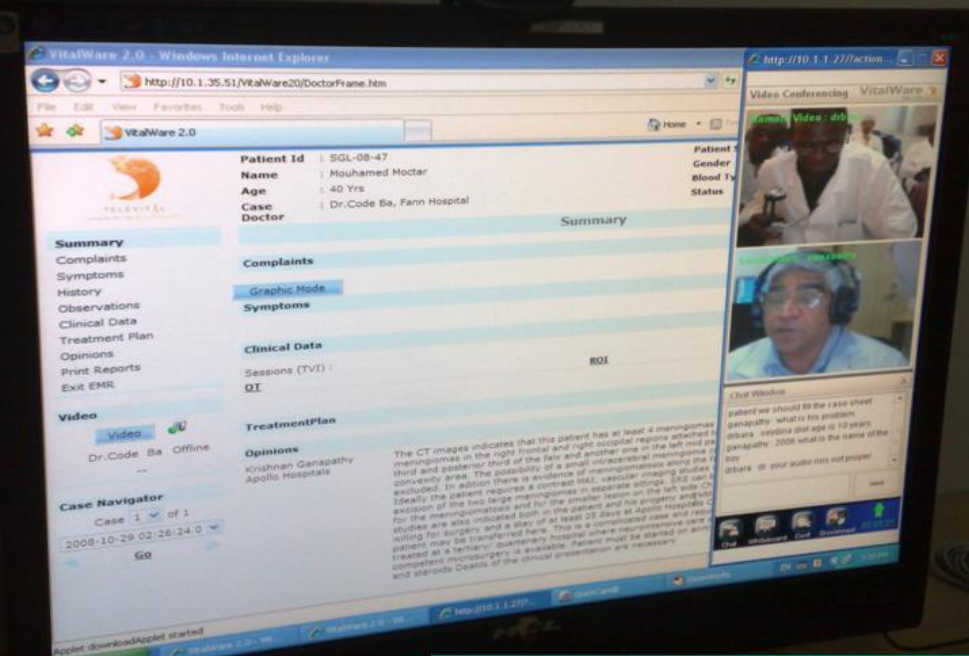**Pan African eNetwork – Control Room at Apollo Hospitals, Chennai**

Studio at Apollo Hospitals, Chennai for CME Lectures

PAN AFRICAN eNETWORK- Consultation Suites at Apollo Hospitals, Chennai

TELECONSULTATION WITH SENEGAL- APOLLO END

TELECONSULTATION WITH SENEGAL

TELECONSULTATION WITH SENEGAL
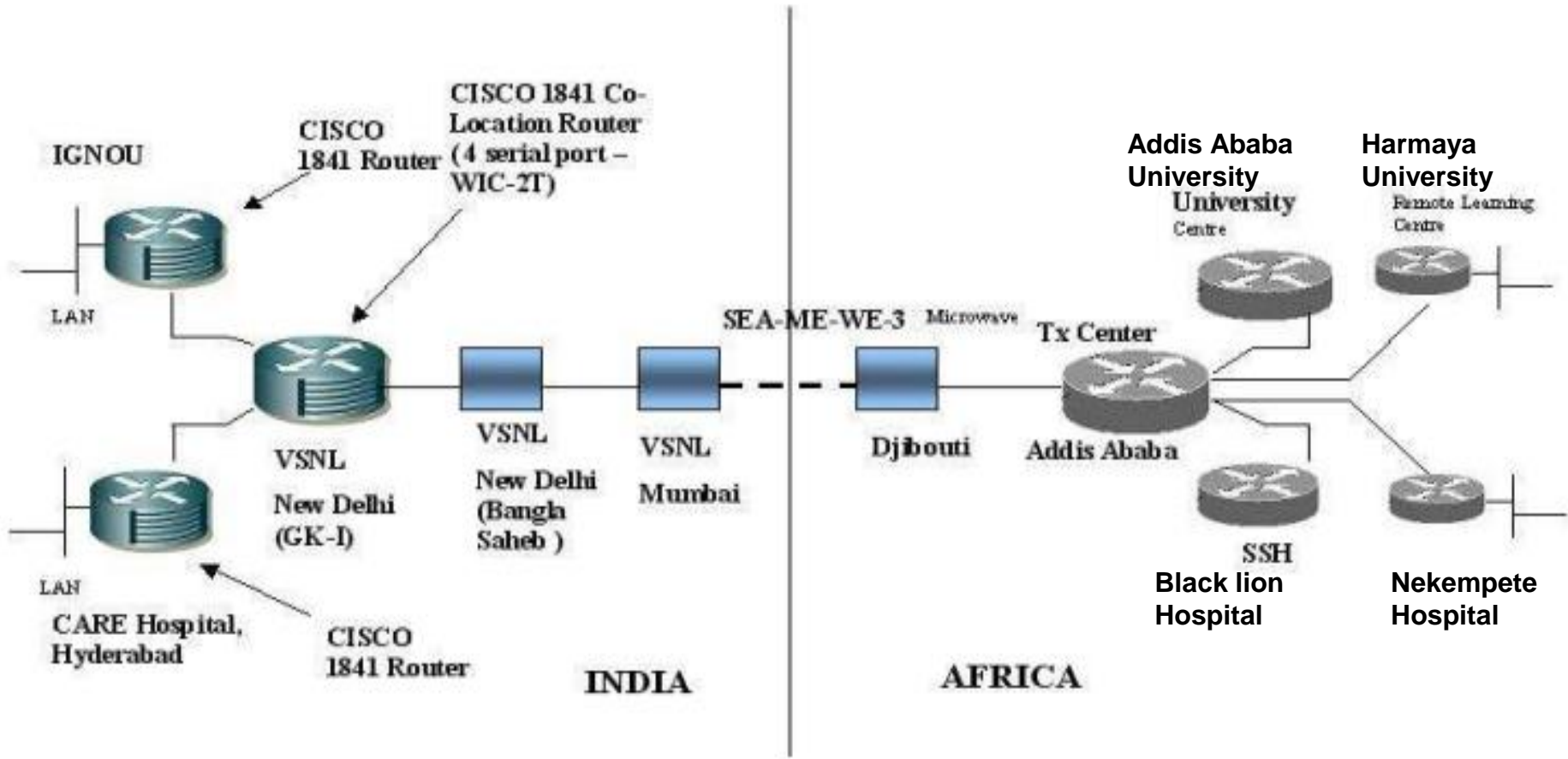
Ethiopia Pilot Project on Tele-medicine and Tele-education

Ethiopia Pilot Project on Tele-medicine and Tele-education

CONNECTIVITY FOR TELE-EDUCATION & TELE-MEDICINE NETWORK OF ETHIOPIA PILOT PROJECT

India Side

Tele-education

- Indira Gandhi National Open University, New Delhi

Tele-Medicine

- Care Hospitals Hyderabad

Ethiopia Side

Tele-medicine

- Black Lion Hospital Adis Ababa
- Nekempte Hospital, Nekempte

Tele-education

- Addis Ababa University, Adis Ababa
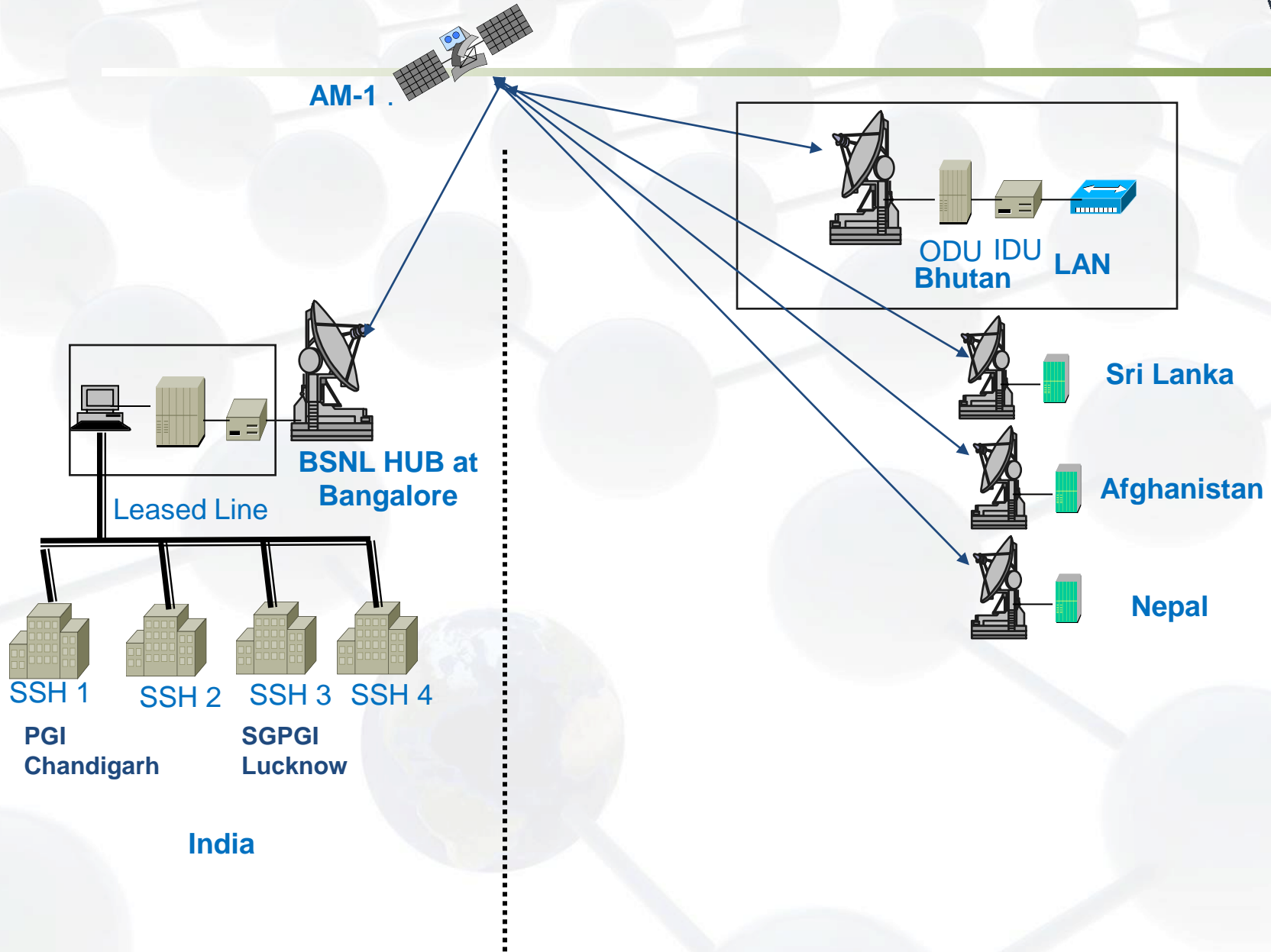- Harmaya University

43 CME sessions and 27 Tele-medicine consultations took place on the network

SAARC e-Network
For
Tele-medicine and Tele-education

SAARC e-Network Architecture

AM-1

ODU IDU **LAN**
Bhutan

Sri Lanka

Afghanistan

Nepal

BSNL HUB at Bangalore

Leased Line

SSH 1   SSH 2   SSH 3   SSH 4

PGI Chandigarh   **SGPGI Lucknow**

India

India Side

Tele-education
- Indira Gandhi National Open University, New Delhi

Tele-Medicine
- PGI Chandigarh
- SGPGI Lucknow

SAARC Countries

Tele-medicine

Afghanistan
- Indira Gandhi institute of Child Health, Kabul, Afghanistan

Bhutan
- Jigmi Dorgi Wangchuk National referral hospital, Timpu, Bhutan

Nepal
- Patan Hospital Katmandu Nepal

Tele-education

- Katmandu University, Katmandu Nepal

470 Tele-medicine and CME sessions took place on the network

Onco-NET Project

OncoNET Project Tele-medicine Network TCIL Implementation

Primary Cancer Center

Regional Cancer Center, PGI Chandigarh

Regional Cancer Center, Srinagar Sher-a-Kashmir Institute of Medical Sciences

Primary Cancer Center, Dist. Hospl. Kargil

Primary Cancer Center Dist. Hospl. Bathinda

Primary Cancer Center, Dist. Hospl. Punj

NICNET

NIC Office Premise
Router connecting to NICNET

2Mbps Link to NICNET
D-Link Switch
Air Conditioner
Television
X-Ray
Film Scanner
Laser Printer
Desktop
Digital Microscope
Video Conferencing Equipment
Digital Camera
1 KVA UPS
1 KVA Genset

NIC Office Premise
Router connecting to NICNET

2Mbps Link to NICNET
D-Link Switch
Air Conditioner
Television
X-Ray
Film Scanner
Laser Printer
Desktop
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Video Conferencing Equipment
Digital Camera
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1 KVA Genset

NIC Office Premise
Router connecting to NICNET

2Mbps Link to NICNET
D-Link Switch
Air Conditioner
Television
X-Ray
Film Scanner
Laser Printer
Desktop
Digital Microscope
Video Conferencing Equipment
Digital Camera
1 KVA UPS
1 KVA Genset

NIC Office Premise
Router connecting to NICNET

2Mbps Link to NICNET
D-Link Switch
Air Conditioner
Television
X-Ray
Film Scanner
Laser Printer
Desktop
Digital Microscope
Video Conferencing Equipment
Digital Camera
1 KVA UPS
1 KVA Genset

NIC Office Premise
Router connecting to NICNET

2Mbps Link to NICNET
D-Link Switch
Air Conditioner
Television
X-Ray
Film Scanner
Laser Printer
Desktop
Digital Microscope
Video Conferencing Equipment
Digital Camera
1 KVA UPS
1 KVA Genset

Equipment of Telemedicine Setup at OncoNET Site

NIC Office Premise

Router connecting to NICNET

2Mbps Link to NICNET
(via local NIC office)

Air Conditioner

D-Link Switch

X-Ray Film Scanner

Television

Laser Printer

Desktop

Digital Microscope

Video Conferencing Equipment

Digital Camera

1 KVA Genset

1 KVA UPS
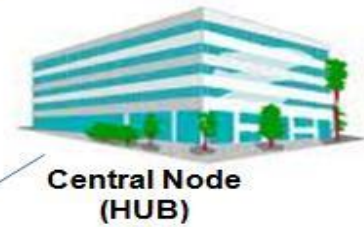
TCIL Expertise in Telemedicine

Expertise in implementing Telemedicine network across countries and continents

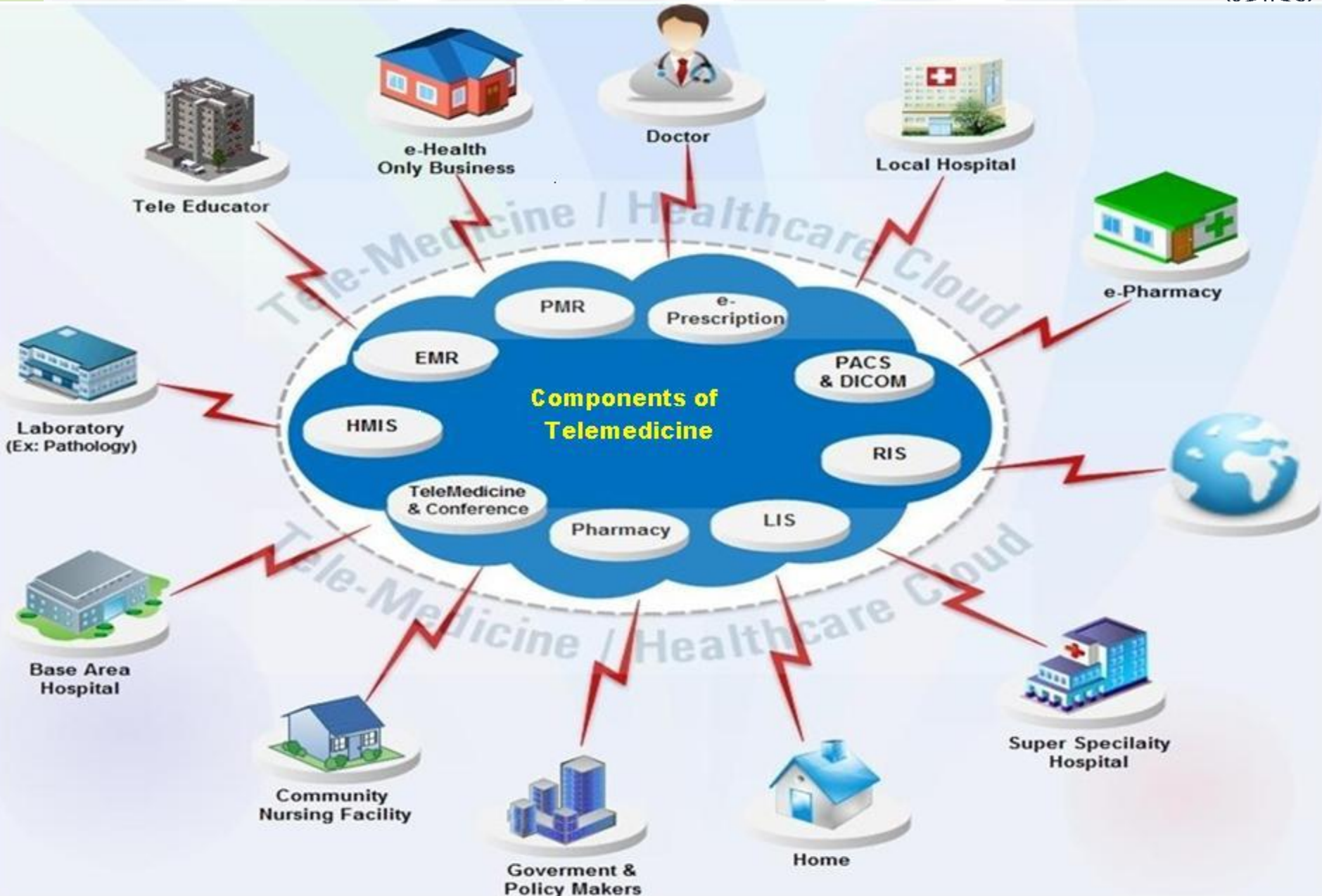| Project	Contract Value	No. of Centers	Contract Value	Start Date	End Date	Beneficiaries	Statistics
Ethiopia Pilot Project on Telemedicine and Tele-education	US$ 2.12 Million	6	US$ 2.12 Million	21/11/2005	Completed	Nekemte Hospital, Black Lion Hospital, Care Hospital	CME : 43 Telemedicine Consultation: 27
SAARC Telemedicine Network	Rs.9.78 Crores	7	Rs.9.78 Crores	8/2/2008	Running	Jigmi Dorgi Wangchuk National Referral Hospital-Thimpu-Bhutan, Patan Hospital-Kathmandu-Nepal, Indira Gandhi Institute of Child Health, Kabul, Afghanistan	Total CMEs and Telemedicine sessions: 470
Pan-African e-Network Project	Rs. 542 Crores	169	Rs. 542 Crores	27/2/2008	Running	48 African Countries	CME in English: 3254 CME in French: 352 Tele Medicine Consultation: 553
OncoNET Telemedicine Network	Rs.11.8 Crores	5	Rs. 11.8 Crores	1/12/2009	Running	PGIMER-Chandigarh, Civil Hospital-Bhatinda, Dist. Hospital- Punj, Sher-I-Kashmir Institute of Medical Sciences-Soure-Shrinagar, Dist. Hospital-Kargil	Telemedicine Consultation in Oncology

Rural Tele-medicine solution (e-Health/ m-Health)

Components of Telemedicine

- **Cloud service** shall be hosted at TCIL HQ for catering Telemedicine services

- **Rural Primary Mobile Health Center** shall be supported by Paramedic staff

- **Paramedic** shall be equipped with diagnostic equipment kit to examine the patient

- **Virtual Pool of doctor** shall be available online using telemedicine software through Data Center

- **Hospital/Medical College** will be connected through network to support rural paramedic staff through Internet

- This solutions connect the Tele Medicine **Network from village – Taluka – District – State – up to Country Level**

- Node will be connected through cloud based Network

Measurable Parameters Portable Medical kit

- Body temperature
- ECG
- Blood Pressure
- Blood Sugar
- Urine proteins
- Urine Sugar
- Hemoglobin
- Pulse oxymetry
- Heart rate/ pulse rate
- Water quality

Information Management

- Patient registration;

- Electronic Medical Record Management

- Patient Medical Record Management

- Doctor prescription

- Community Health Management through Community health records and data mining

- Drugs and Medicine Requirement Management

Conclusion

- Limited Knowledge resources of doctors and para-medical staff
- Large **Capacity building** of paramedical staff at village level required

- ICT enabled **Tele-medicine and m-Health solution are the only viable solution** to support Health service requirements

- Sustainable ICT based **Public Health Infrastructure development** for operations and management of Health Services is the answer
  - ➢ Health Management,
  - ➢ Disease Management
  - ➢ Resource Management (Man and material)