

# **Competitive Edge of NRENs and Financial Sustainability**

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# **Evolution of REN: Global Trend**

- **The networks available during 1970s and 80s are**
  - **ARPANET (Advanced Research Projects Agency Network)**
  - **BITNET (University cooperative)**
  - **CSNET (Computer Science Network)**
  - **BITNET and CSNET were combined into the Corporation for Research and Education Networking (CREN) in 1989.**
  - **REN in Europe in 1986 (NORDUnet)**
- **Concepts of REN**
  - **Internet Engineering Task Force (IETF) published a Request for Comments (RFC) on July 1990: 1167**
    - **‘Thoughts on the National Research and Education Network’**
  - **Brief outline of National Research and Education Network (NREN) primarily focused on the developments in the USA.**

# **Evolution of REN: Global Trend**

- **Operational Scope**
  - **Only for HEIs-AARNET, LEARN**
  - **Education and Research up to School-NKN**
  - **Education, Research and Government-OARnet, PREGINET**

# **Competitive Advantages of NRENs**

- **Quality?**
- **Cooperation/Collaboration?**
- **Resource Sharing?**
- **Innovative Services?**

# **Similarity with Commercial ISP**

- **Basic Service (Connectivity and Internet Bandwidth)**
- **Data Center Service**

# **Novelty of NRENs**

- **Connectivity to global R&E networks (Internet2, GEANT, Other NRENs)**
- **Capacity Development of through International Cooperation**
- **Free Technical Consultation**
- **Research Funding through International Organization**
- **Innovative Services (Eduroam, EduGain)**

# **Governance of REN: Global Trend**

- **Management Mode**
  - **Most of the REN are under government management across the globe and run by government fund**
  - **Some run independently but government's financial support is there**
  - **Runs as company-AARNET (not-for profit company), SURFnet(nl)-commercial Company**
  - **Few are as Trust/Foundation**

# **Pattern from History**

- **NRENs were funded from a central source or the government.**
- **The network recovers the costs from the institutions it connects and provides services for. The funds may come, and they often do, again from the government.**
- **Two distinct funding models :**
  - **User/service dependent or a user funding model**
  - **User/service independent or central funding model**



# Financing Model of NRENs in Asi@Connect

## NRENs financing is dominated by government sources

- For most of the NRENs in Asi@Connect, it was found that the financing was dominated by government sources, particularly in the non-beneficiary countries carrying lower level of per capita GDP.
- Client financing might not be an automatic choice for NRENs whose members are not that solvent and obviously such solvency is triggered by the economic condition of the country they belong to.
- NRENs who have higher per capita GDP might dare to go for Client financing, there are exceptions even for such countries too. KOREN, NICT, MAFFIN and SINET residing in countries with high per capita GDP runs entirely from government support.

# Financing Model of NRENs in Asi@Connect

NREN	Government		
ThaiREN	100%		
VinaREN	100%		
SINET	100%		
NKN	100%		
NICT	100%		
MYREN	100%		
MAFFIN	100%		
KOREN	100%		
DrukREN	100%		
PREGINET	100%		
		Client	Others
<b>BdREN</b>	<b>61.75%</b>	<b>21.76%</b>	<b>16.49%</b>
<b>SingAREN</b>	<b>30%</b>	<b>56%</b>	<b>14%</b>
AARNet		100%	
LEARN		95%	5%
HARNET		90%	10%
REANNZ	20%	80%	
PERN	30%	70%	
IDREN			100%
CAMREN			100%
AfgREN	20%		80%
NREN		20%	80%

# Holistic Framework for Sustainability



# Strategies in Holistic Framework



# **Income Generation Strategy**

- **Income from Operational Activities**
  - **Sale of Basic Services**
  - **Introduce Income Generating service**
    - **Innovative Service, SaaS**
  - **Managed Network Service (Campus Network and Other IT Services)**
    - **Only for member institutions on BPO model**
- **Income from Non-operational Activities**
  - **Increase Membership Base (Membership Fees)**
  - **Training and Consultancy**
    - **For Member Institutions**
    - **For General**
  - **Create Assets which can generate revenue**
  - **Efficient management of Endowment Fund (if any)**

# **Cost Reduction Strategy**

- **Network Operation Cost**
  - **Efficient Network Operation**
  - **Infrastructure Sharing**
  - **Peering and Caching (Facebook, Google, Akamai, YouTube, IXs)**
- **Administrative Cost**
  - **Smart Organization Structure (Smart Human Resource)**
  - **Efficient Financial Management**

# **Collaboration Strategy**

- **Collaboration with other NREN**
- **Engagement with International Association**

## **Benefits:**

- **Human Capacity Development**
- **Project-basis funding**
- **Knowledge sharing**

# **Policy-support Strategy**

- **Regulatory/Legal Framework**
  - **Operational License Fee, Renewal Fee and Revenue sharing**
- **Support from strong strategic partner (s)**
- **Corporate Tax Issue-Not-for-profit operation**
- **REN needs overall policy support from Regulator/Government**



# Funding Strategy

- **Operational Expenditure**
- **Development and Expansion**
  - **Government**
  - **International Contribution**
- **Sourcing for CSR Fund**
  - **Corporate Sector**
  - **Social Obligation Fund (Administered by Regulator /Government)**

