



# Bhutan REN

## (*DrukREN*)

Infrastructure Division, Department of IT & Telecom, Ministry of  
Information & Communications, Royal Government of Bhutan.

25<sup>th</sup> August, 2014



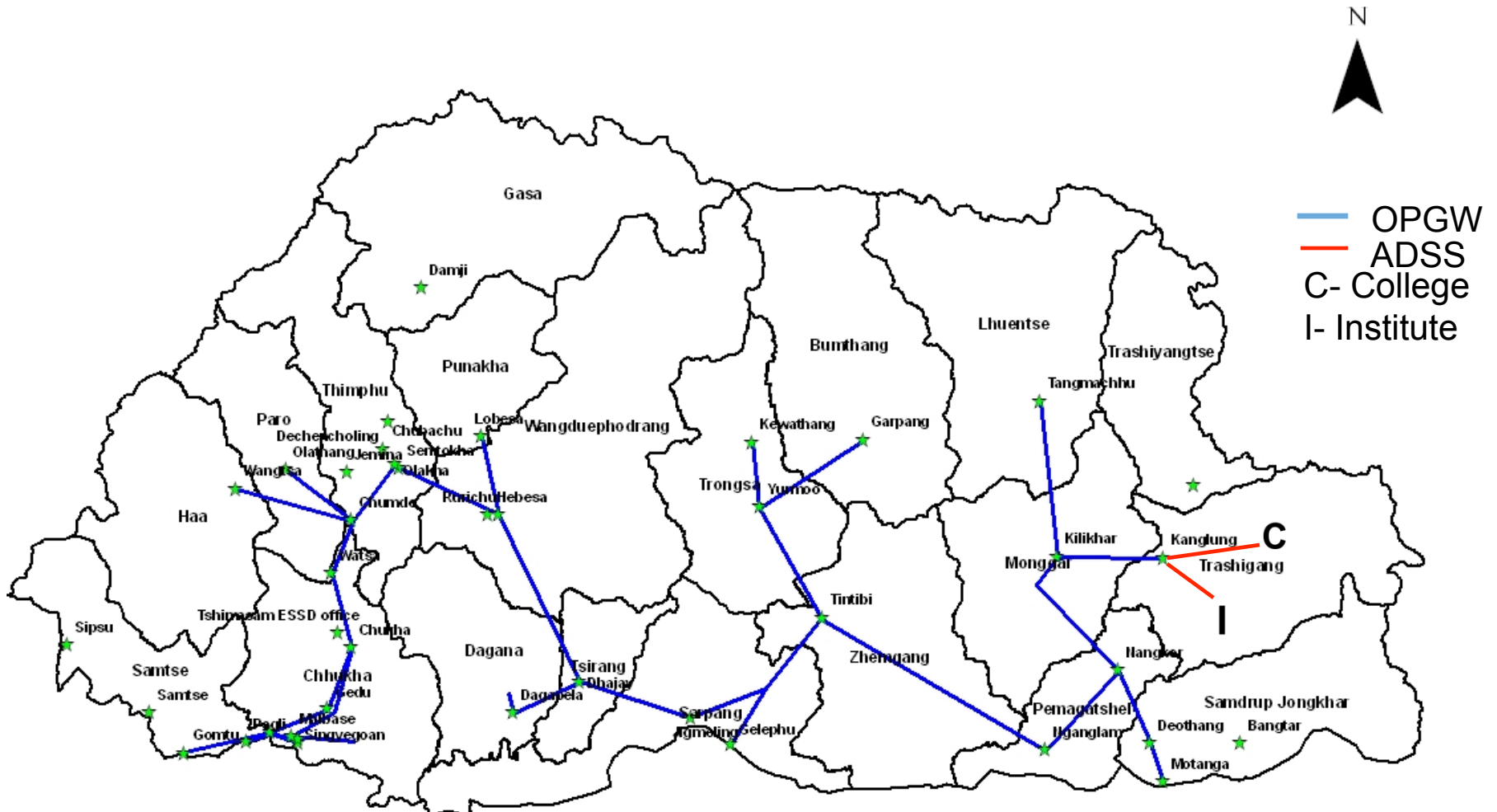
# Content:

1. Infrastructure available to establish DrukREN
2. Plans
3. DrukREN's Systems
4. Timeline



# 1. Infrastructure available to establish DrukREN

# National Backbone: OPGW/ADSS Network

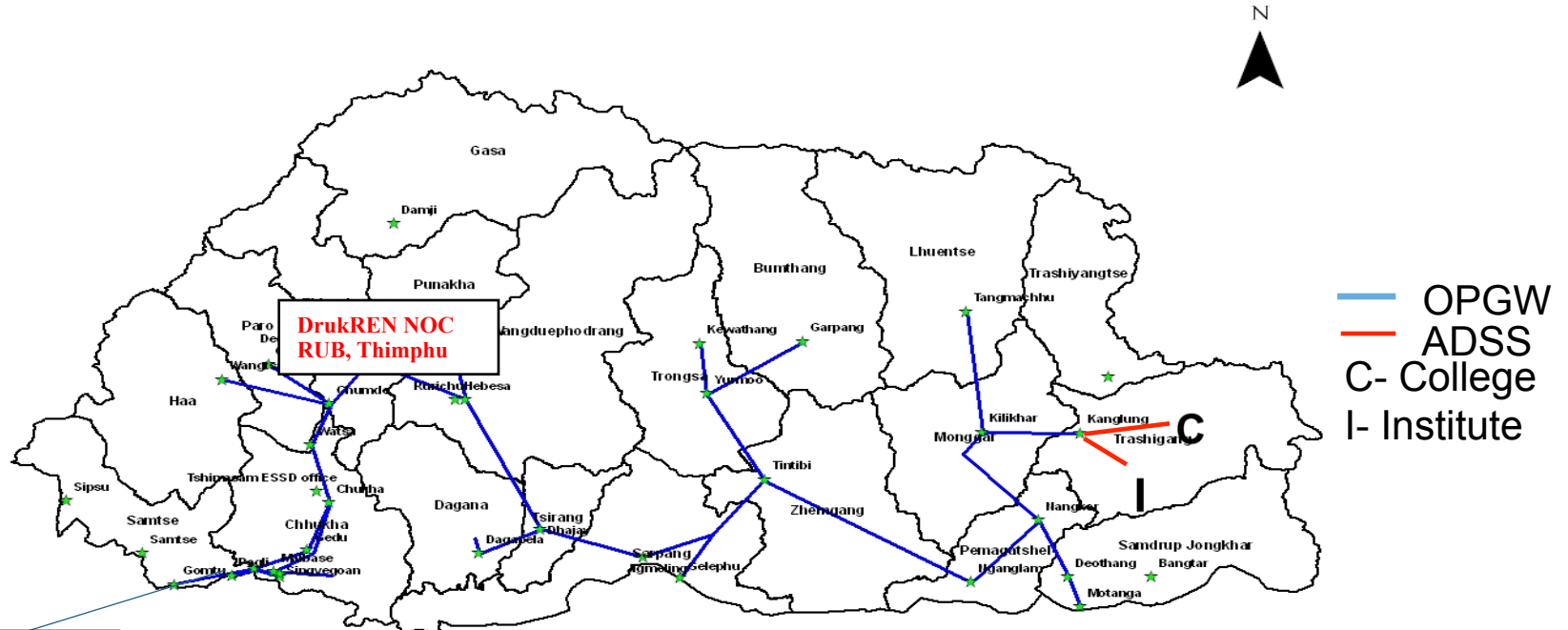


# DrukREN Members

Sl.No	Member
1	SCE
2	CST
3	GCBS
4	NM
5	PCE
6	CAPPS
7	RAB
8	RUB OVC
9	NITM
10	RIHS
11	HTC
12	RIM
13	UMSC
14	CBS

Sl.No	Member
15	REC
16	RTC
17	CNR
18	VTI-G
19	JL
20	VTI-B
21	UWC
22	ILCS
23	JNP
24	NC
25	MC
26	SC
27	RECTI
28	RJVTI

# National Backbone: DrukREN NOC



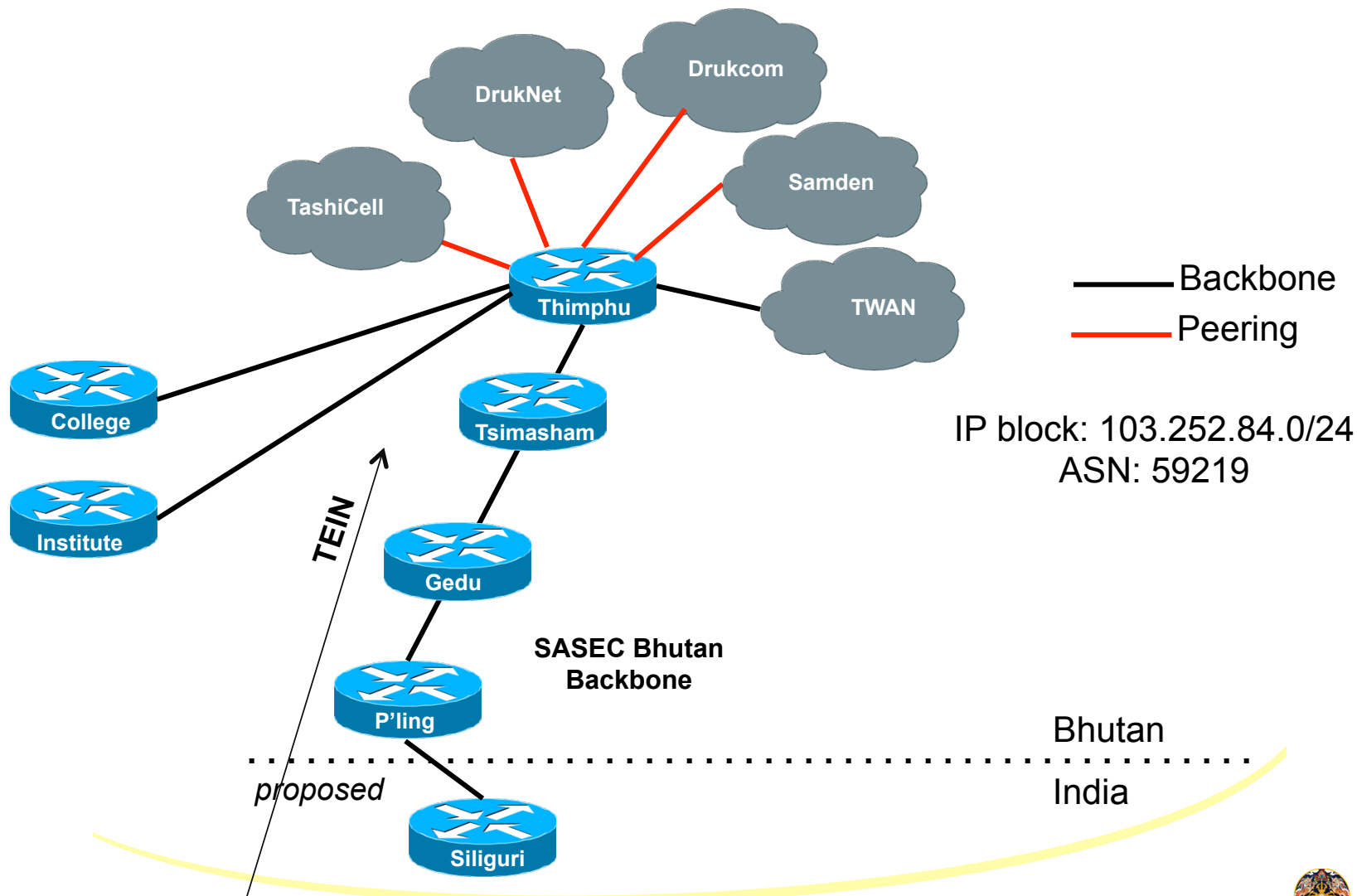
**SASEC NOC  
Siliguri, India**

**NKN Institute**



## 2. Plans

# DrukREN - WAN







# Addressing

- IPv4 address
  - DrukREN institutes/colleges
- IPv6 address
  - Backbone link
  - Servers



# Operations

- Kick-start
  - Royal University of Bhutan (DrukREN NOC)
- Staffing
  - 2-3 experts (technical support-DITT)
    - Network Engineering
    - Systems Engineering
- Funding
  - Government of Bhutan



# SASEC N/W

- SASEC Regional Network is planned to come to Thimphu from Siliguri (India)
- SASEC original plan 10 years ago was to be commercial and R&E infrastructure
  - Replace existing satellite connectivity
  - It connects Bangladesh, Nepal, Bhutan and India
- Status:
  - Thimphu – Phuntsholing link complete
  - No progress on links to Siliguri or the Siliguri NOC



# SASEC N/W

1. Proposal: We redefine SASEC in Bhutan as R&E only
  - Commercial ISPs already have their own fibre/transit
2. Wider Proposal: We request SASEC partners in Bangladesh and Nepal to redefine their portion as R&E network
  - Commercial ISPs in Nepal and Bangladesh already have substantial infrastructure
3. Wider Proposal: DrukREN interconnects with India NKN in Siliguri
  - BDREN and NepalREN also connect to NKN in Siliguri



# SASEC N/W

- Requirement:
  - Need ADB approval/agreement to use it for R&E



### 3. DrukREN' s Systems



# DrukREN Systems

- Network Management System
- Domain Name Systems
- DrukREN website & etc...



## 4. Timeline (tentatively)







# Time Line (1)

- Before October 2014
  - Meeting with NKN, Iinda
  - Tendering
  - Advertising technical staff posts
- Early October 2014
  - ThimphuIX created
    - Member Association established
    - ISP Peering set up(DrukNET, TashiCell, DrukCom, Samdentech)



# Time Line (2)

- Mid November 2014
  - Formal launch of DrukREN
  - DrukREN technical staff will attend BTNOG workshops
  - DrukREN servers migrated to cluster
    - Could be NSRC supported activity



# Time Line (3)

- By end of 2014
  - DrukREN connectivity to TEIN4 via NKN completed
  - DrukREN server cluster operational
  - Staff fully comfortable with network operation



# Time Line (4)

- Late January 2015
  - Campus Design Workshop by NSRC supported by TEIN\*CC
    - Open to all potential members of DrukREN
    - Training on campus network design, routing protocols, wireless, etc
  - Connecting the first members to DrukREN
    - Those with existing accessible fibre connections



# Time Line (5)

- February 2015 onwards
  - DrukREN operational
  - New members being connected
    - Target RUB Colleges & Institutes first
  - DrukREN Association meeting
- December 2016
  - DrukREN fully operational, supported by Bhutan R&E community and Government



# Thank You & Tashi Delek

