



PAKISTAN EDUCATION & RESEARCH NETWORK (PERN2) OPERATIONS

Higher Education Commission
Govt of Pakistan



AGENDA

- ◉ PERN2 Network Overview and key objectives
- ◉ Interconnectivity between PERN2 and other NREN`s
- ◉ PERN2 NOC



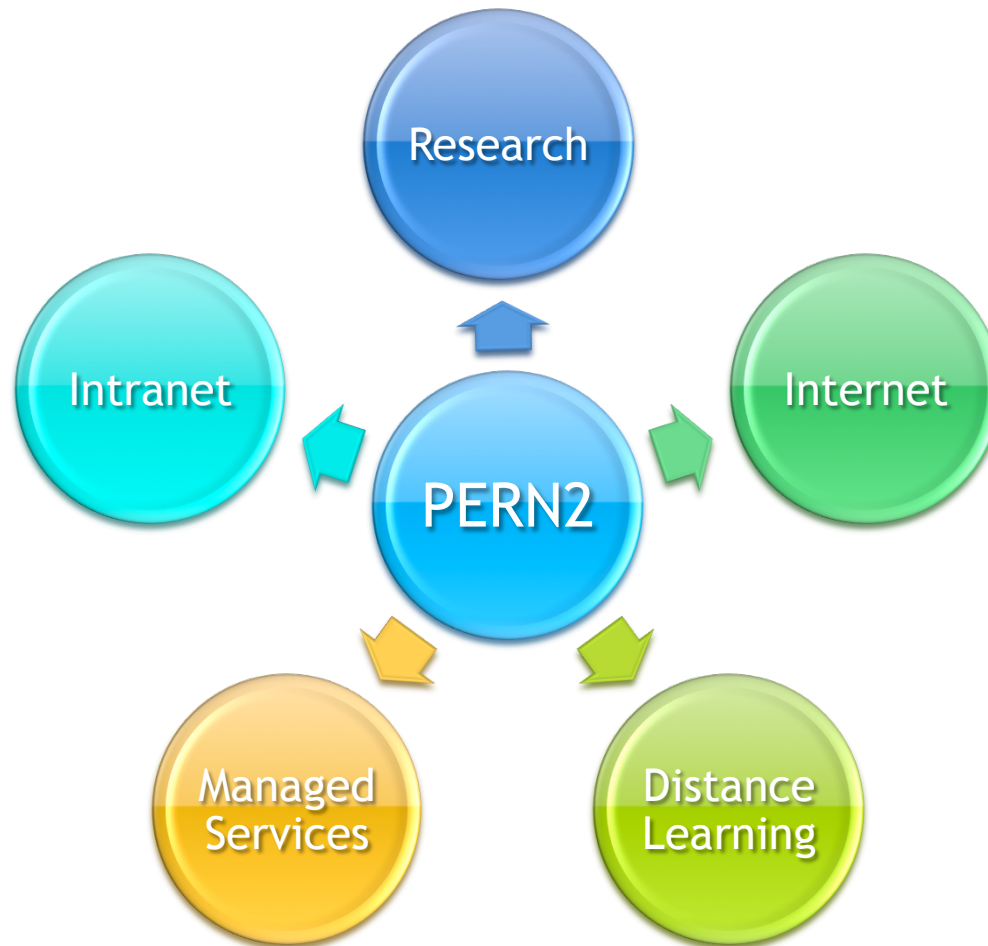
PERN2 OVERVIEW

- ◉ Pakistan's National Education & Research Network.
- ◉ A Digital Dedicated Communication Network interlinking 156 Public & Private Sector Universities in Pakistan.
- ◉ A vision to enhance the Education & Research capabilities among the students of Pakistan.
- ◉ Provide integration of data banks, collaboration for research and development activities and up-gradation of teaching and learning skills.
- ◉ Connected to other Education & Research Networks World wide for fruitful R&D.



PERN2 OVERVIEW (CONTD..)

- PERN2 Motive

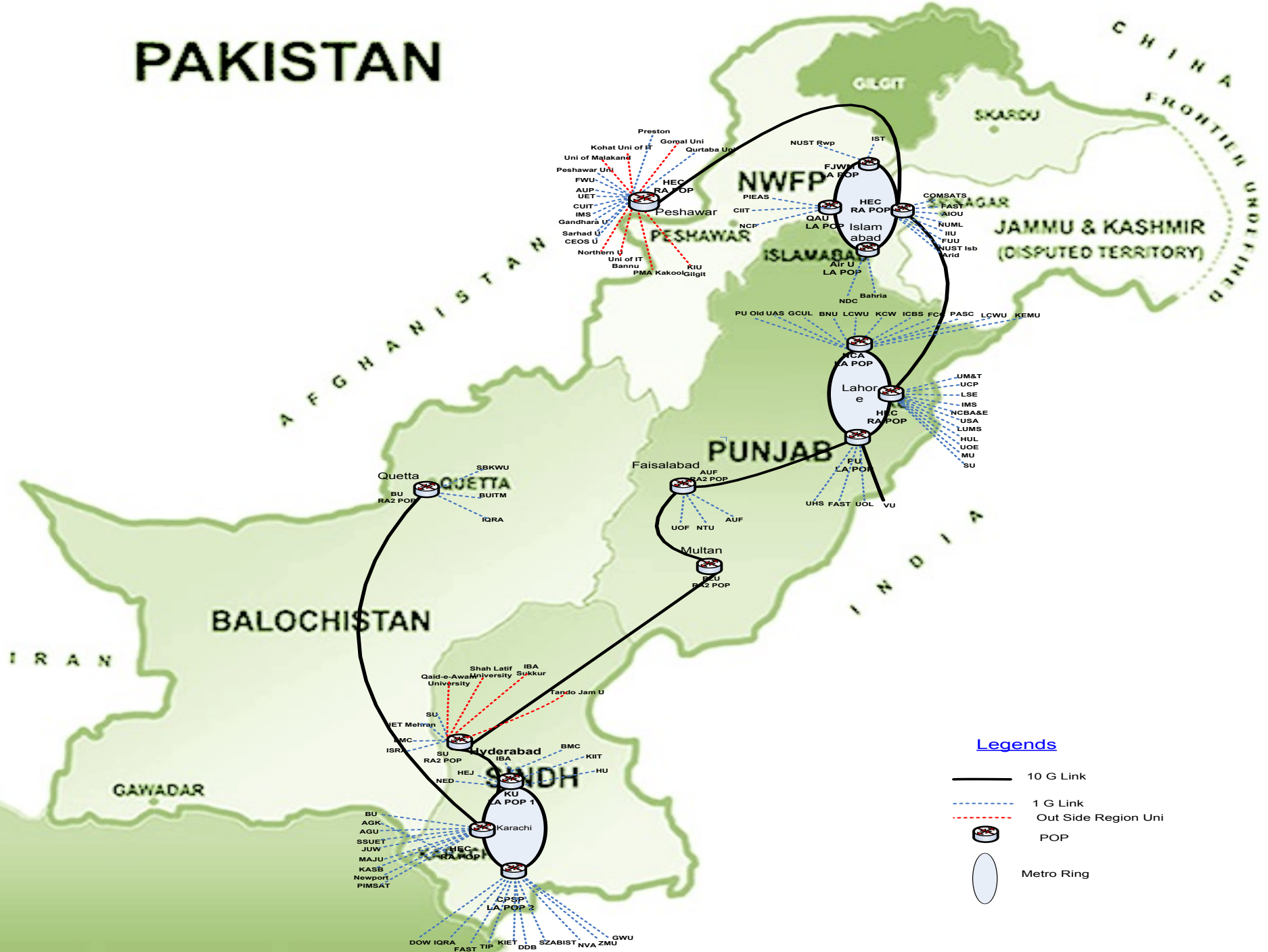




PERN2 OVERVIEW (CONTD..)

- ◉ PERN2 Network Overview & Transmission Services Overview
 - ◉ Network up-gradation through
 - Three (3) Regional Access PoPs
 - Twelve (12) Local Access PoPs in major cities
 - ◉ 10Gbps metro rings in Karachi, Lahore & Islamabad
 - ◉ 5Gbps Commodity Internet bandwidth
 - ◉ 1Gbps (40 times faster) connectivity to all the Universities/institutes connected to PERN2
 - ◉ 155Mbps Link with TEIN3

PAKISTAN





INTERCONNECTIVITY BETWEEN PERN2 AND OTHER NREN's

- ◉ Partners Role in PERN2
- ◉ PERN2 Linkage to other NREN`s & current status
- ◉ Applications & Research Project



INTERCONNECTIVITY BETWEEN PERN2 AND OTHER NREN'S (CONTD..)

◉ Partners

◉ Asia-Pacific Advance Network

- ◉ Primary Member of APAN of Asia and Australia

◉ Pak-EC Joint Commission on Science & Technology

- ◉ DANTE: Collaborating partner representing GEANT2 of Europe and TEIN2/3 of ASEM (Asia-Europe Meeting)

◉ Pak-US Joint Commission on Science & Technology

- ◉ NSF/IU: Collaborating partner representing Internet2 of USA

◉ Pakistan-UAE Partnership on NRENs (in progress)

- ◉ Ankabut: Collaborative partner representing NREN of UAE



PERN2 NETWORK OPERATIONS

- ◉ Network Operation Center
- ◉ Network Management System
- ◉ Customer Relationship Management (CRM)
- ◉ Information Store & Web portal
- ◉ Security portal



PERN2 NETWORK OPERATIONS (CONTD..)

- Network Operation Center
 - Central NOC at HEC national TEIR2 level
DATACENTER in Islamabad
 - NOC Team has been Deputed 24X7X365
 - Engineers are deputed on each PERN2 POP site
(Karachi , Lahore, Peshawar, Quetta & Multan)



PERN2 NETWORK OPERATIONS

(CONTD..)

- View of PERN2 Central NOC





PERN2 NETWORK OPERATIONS (CONTD..)

- ◉ Network Monitoring services

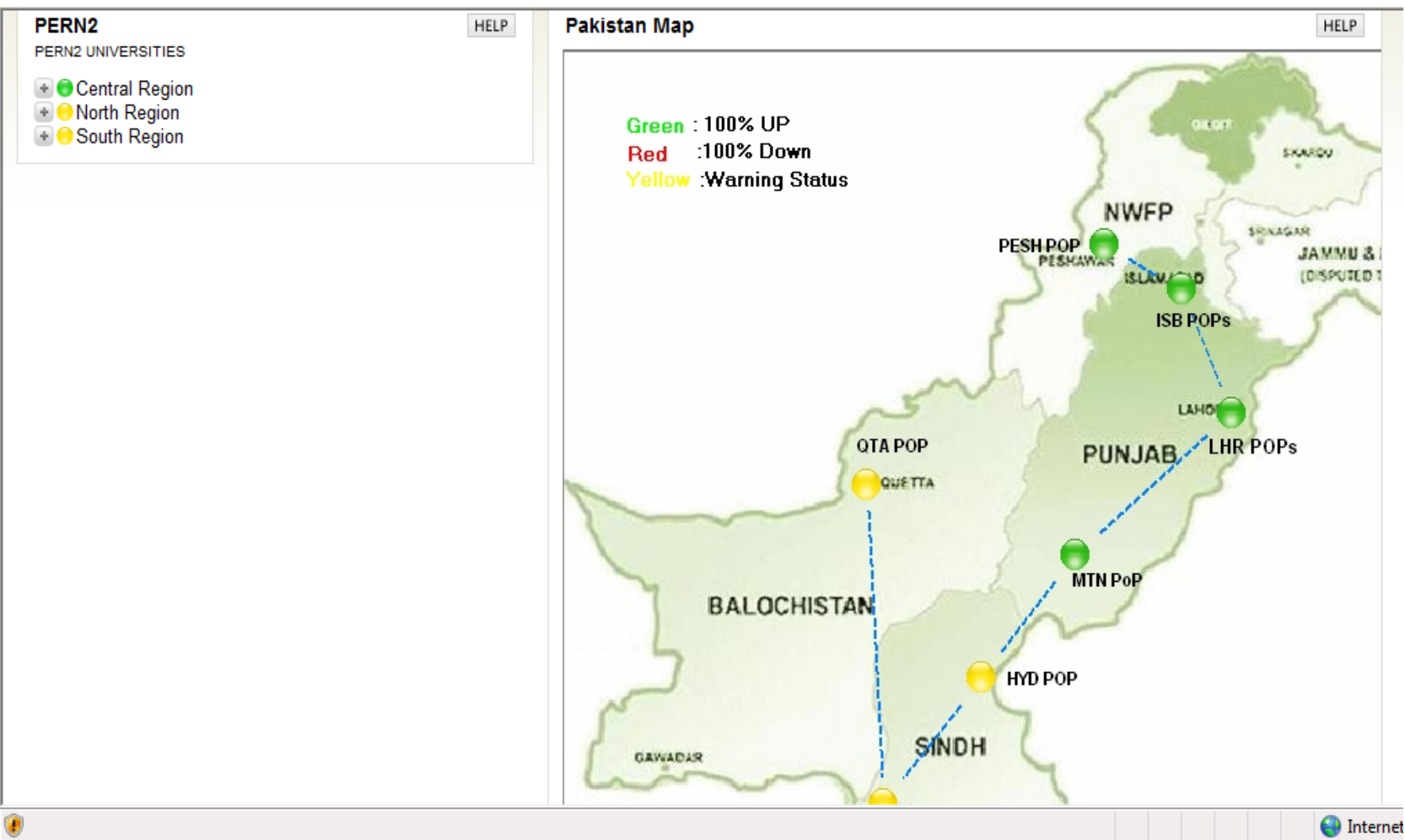
- Primary NMS is Solarwinds
- Secondary NMS is Huawei DMS
- Multisite Monitoring (Islamabad - Karachi) - Redundancy
- Web Access to Universities / Engineers
- 24X7 Monitoring



PERN2 NETWORK OPERATIONS

(CONTD..)

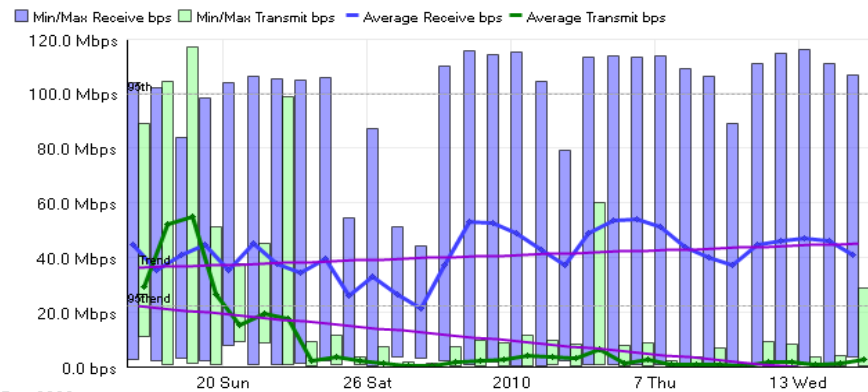
● PERN2 NMS



Last 30 Days Graph of PTCL link at ISB 110-MB Bandwidth

HEC Isb POP-GigabitEthernet2/1/0 - [TO_PTCL_EBGP_LINK_AS-17557]

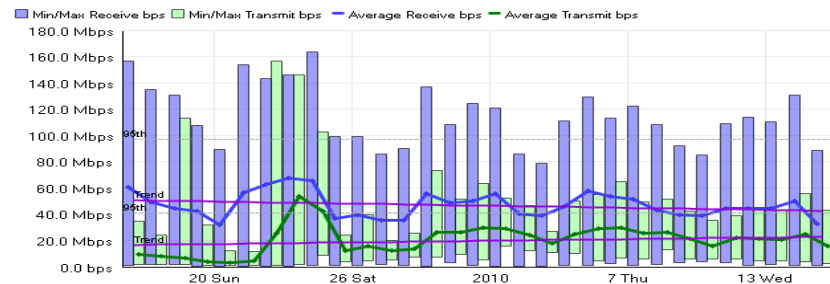
Min/Max/Average bps of Recv 110.0 Mbps Xmit 110.0 Mbps
LAST 30 DAYS



Last 30 Days Graph of TW1 link at ISB 200MB Bandwidth

HEC Isb POP-GigabitEthernet1/1/10 - [TO_TW1_EBGP_LINK_AS-38193]

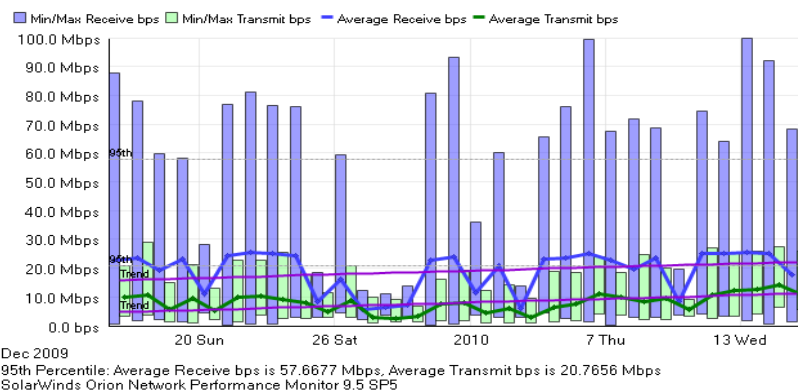
Min/Max/Average bps of Recv 200.0 Mbps Xmit 200.0 Mbps
LAST 30 DAYS



Last 30 Days Graph of TWI link at KHI 155MB Bandwidth

HEC RCKhi PoP-GigabitEthernet2/1/1 - to [TW1-LINK]

Min/Max/Average bps of Recv 155.0 Mbps Xmit 155.0 Mbps
LAST 30 DAYS

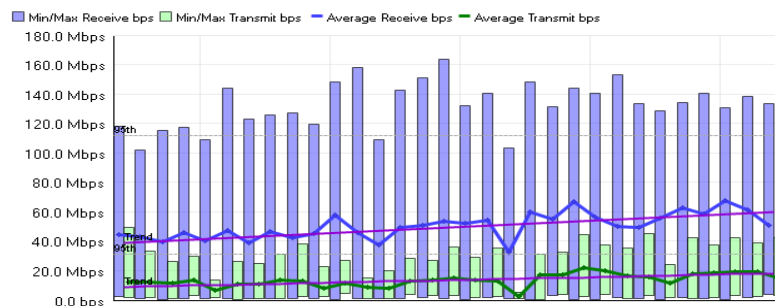


Last 30 Days Graph of TWI link at LHR 265MB Bandwidth

HEC RCLhr POP-GigabitEthernet2/1/1 -

TW1 Link

Min/Max/Average bps of Recv 1.0 Gbps Xmit 1.0 Gbps
LAST 30 DAYS





CUSTOMER RELATIONSHIP MANAGEMENT (CRM)

◉ Service Communicator

- Generates Tickets
- <http://sc.hec.gov.pk>
- Account of Every University / Institutes Available.
- They can log their Complain through this portal.
- 24/7 Help Line also Available i.e 111-11PERN & 051-9040PERN
- Complain also can log by email
pern2@hec.gov.pk



THANKS