

# Terms Of Reference

## 'Cellular Village Connection Trials' (CVCT)

### Background

Expansion of cellular services have not been possible in several geographical location of Pakistan merely due to terrain, closed proximity to border areas, feasibility concerns, cost of deployment and maintenance, low population etc.

A Cellular village connection is a concept which caters for these concerns and is feasible in several ways.

### Project Objectives:

The objective is to plan a trial, 'Village Connection' through and small integrated GSM Access Point solution. It shall facilitate the rural masses and capture the rural potential by offering voice, SMS, GPRS/EDGE and internet service with relatively **low investment**.

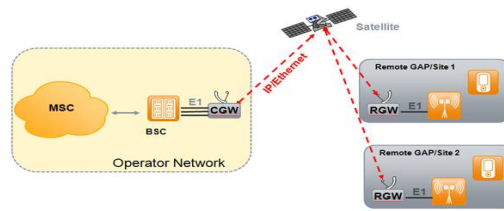
### Project Plan :

- **Approach:**
  - One demo site is planned to be installed initially.
  - Two demo sites in the later stage.
    - To help test the handovers.
    - Should be installed in the adjacent cells for the HO testing.
  - The location shall be selected such that has quit a number of users of the users or otherwise, create the users by:-
    - Distributing the Sims to the locals.
    - Facilitate the promotion of services.

# Backhaul connectivity options

## ▪ Solution 1

PTA Village Connection Trial – Solution 1

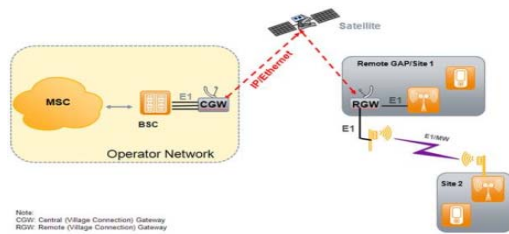


Note:  
CGW: Central (Village Connection) Gateway

- This solution will be opted for if:-If the two selected site co-ordinates are far away from each other or there is no line of site possible between the two sites.
- Solution is comparatively expensive due to two VSAT connections.
- The advantage is that no restriction on BSC selection.

## ▪ Solution 2

PTA Village Connection Trial – Solution 2

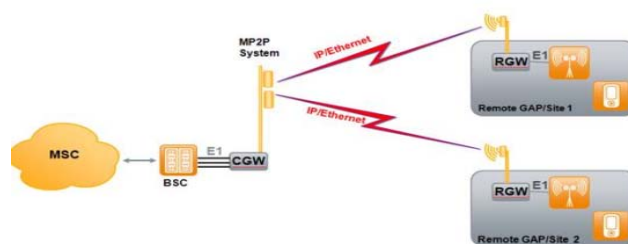


Note:  
CGW: Central (Village Connection) Gateway  
RGW: Remote (Village Connection) Gateway

- This solution will be selected if sites are in line-of-sight and near enough to have a microwave connection between them (almost 10 KM).
- This adds an advantage of having just one VSAT i.e. cheaper than solution1.

## ▪ Solution 3

PTA Village Connection Trial – Solution 3



Note:  
CGW: Central (Village Connection) Gateway  
RGW: Remote (Village Connection) Gateway

- This solution will be opted if both the sites are in line-of-sight with BSC and at a distance which allows a microwave link establishment.
- This solution is economically most suited.

# General Conditions

- The minimum requirement of VSAT link for 14 simultaneous voice only calls is 128Kbps.
  - The tower height shall be maintained to avoid signal spill over across the border.
  - The service shall be provided at national advertised tariffs or below.
  - The system shall provide the national roaming, intra as well as inter networks, with in entire AJK and Pakistan.
  - MNP subscribers shall be provided with services as per practice in vogue.
  - The solution should provide the feature of local switching.
  - The equipment shall meet all the LI (Legal Interception) compliance requirements.
  - The subscribers shall be verified by the operator as per the practice in vogue (668 service CNIC etc).
  - The subscribers shall be informed that the service may be unavailable after the trial period. The operator may be required to obtain requisite undertaking from the subscribers.
  - The operators shall have the option of procuring the equipment from the vendor on their own for the continuing of the services.
  - All the conditions of Act, Rules and Regulations shall apply.
- **Demo District:**
    - The operator may suggest any remote, un-served area for demo.
    - The demo is recommended in the un-served area of Neelum valley.
      - Northernmost and Largest of the Eight Districts of AJK.
      - Area – 3,621 Sq Km (27 % of AJK ) and approx. 242 km long
      - Population - 0.126 Million(c:2003)
      - No. of Tehsils
        - Athmuqam and Sharda
      - Close to the LoC
- **Site Location:**
    - Any remote un-served location, with no cellular access may be suggested.
    - Town of **Athmuqam** is recommended, having precise co-ordinates, \_\_\_\_\_ & \_\_\_\_\_.
- **Demo Timeline:**
    - The demo is scheduled for a span of **Eight Months**.

- Precisely from August, 2010 to April, 2011.
- The commissioning of the site shall be done by September 25, 2010.

# Responsibilities

## ● PTA's Responsibilities

- To select the site location for trial.
- Government approvals for the mentioned activity in the selected location (if required) .
- Arrange a Mobile Operator through the following procedure for the trial:-
  - All the operators may be invited by PTA to participate in the trial through their vender of choice and its willingness.
  - The operator will have the following responsibilities:

## ● Operator's Responsibilities

- Choose a Vendor of their choice.
- Connect and own the traffic of the trial sites for the said trial period.
- Allocate a resource person/team to co-ordinate during the trial span.
- Arrange for a VSAT link and/or Radio.
  - The VSAT link (if required) should include a modem, terminal equipments (Between BSC and Sites) and Bandwidth etc.
  - Satellite service shall only be availed from providers having the switching hub in Pakistan.
  - The Operator-Vendor consortium will respond to ToR for the trial with in one week's time from the issuance date.

## ● Vendor Responsibilities

- Provisioning of the 'GSM Access Point 'and accessories.
- Installation of the sites (civil, electrical).
- Commissioning.
- Handle the maintenance for the agreed trial period.

## ● Commercial Cost

- **Vendor:**
  - Loan its equipment to the operator for the duration of trial.
  - Bear all the installation and commission cost.
- **Operator:**
  - Acquire the satellite link (if required) and bear its cost.