

Name of Sum: Shaamar (P-1, 2004)

Date: 8th October 2002 (Tuesday)

Time: 16:30

(1) Branching Points on MRC optic fiber route

No jointing point on the earth. There is a fiber cable loop under ground from which a branching is possible.

(2) Distance of branching routes from the Branching Points to MTC telephone office

1.1 km from a MRC small building at a crossing point of railway and road.

(3) Road conditions on the branching routes

paved (10%)

unpaved

road width: 2 m

road side

~~used space (house etc.)~~

open space

(4) Existing poles on the branching routes

~~0%~~

25%

~~50%~~

~~75%~~

~~100%~~

~~problems of conditions if any~~

(5) Which is better, buried cable or aerial cable?

no opinion

(6) Space for equipment in MRC buildings and MTC buildings

MRC

No space

MTC

enough

(7) Power Facility in MRC buildings and MTC buildings

MRC: AC supply ~~Emergency Engine~~ battery in the small building

MTC: AC supply ~~Emergency Engine~~ no battery

(8) Which location is better for new switch, in MRC building or MTC building?

MTC building is near to bigger demand. MRC has no significant buildings.

**Name of Sum: Nomgon(Saikhan) (P-2, 2007)**

**Date:9th October 2002 (Wednesday)**

**Time: 9:20**

(1) Branching Points on MRC optic fiber route

There is no jointing point on the ground near Nomogon. There are cable jointing points under the ground, but they have no cable loops, so it is difficult to make a branch from the cable though it is not impossible.

(2) Distance of branching routes from the Branching Points to MTC telephone office

15.7 km from MTC Hotel (Khutul)

(3) Road conditions on the branching routes

paved

~~unpaved~~

road width: 7 m

road side

~~used space (house etc.)~~

open space

(4) Existing poles on the branching routes

0% ?

25%

50%

75%

100%

~~problems of conditions if any~~

(5) Which is better, buried cable or aerial cable?

no opinion

(6) Space for equipment in MRC buildings and MTC buildings

MRC: no builing

MTC: not surveyed

(7) Power Facility in MRC buildings and MTC buildings

not surveyed

(8) Which location is better for new switch, in MRC building or MTC building?

No MRC building

Name of Sum: Hotol(Khutul) (P-1, 2004)

Date:9th October 2002 (Wednesday)

Time: 9:45

- (1) Branching Points on MRC optic fiber route
  - MUX and Switch
- (2) Distance of branching routes from the Branching Points to MTC telephone office
  - 2.4 km
- (3) Road conditions on the branching routes
  - paved
  - ~~unpaved~~
  - road width: 5 m
  - road side
    - ~~used space (house etc.)~~
    - open space
- (4) Existing poles on the branching routes
  - ~~0%~~
  - 25%
  - ~~50%~~
  - ~~75%~~
  - 100%
  - ~~problems of conditions if any~~
- (5) Which is better, buried cable or aerial cable?
  - no opinion
- (6) Space for equipment in MRC buildings and MTC buildings
  - MRC
    - enough
  - MTC
    - enough
- (7) Power Facility in MRC buildings and MTC buildings
  - MRC: AC supply ~~Emergency Engine~~ battery
  - MTC: AC supply ~~Emergency Engine~~ battery
- (8) Which location is better for new switch, in MRC building or MTC building?
  - MTC building is near to bigger demand.

**Name of Sum: Orhon (P-3, 2013)**

**Date: 9th October 2002 (Wednesday)**

**Time:**

**(1) Branching Points on MRC optic fiber route**

There is no jointing point on the ground near Orhon. There are cable jointing points under the ground, but they have no cable loops, so it is difficult to make a branch from the cable though it is not impossible.

**(2) Distance of branching routes from the Branching Points to MTC telephone office**

19.1 km

**(3) Road conditions on the branching routes**

paved

unpaved (4.5 km out of 19.1 km)

road width: 5 m

road side

~~used space (house etc.)~~

open space

**(4) Existing poles on the branching routes**

0% ?

25%

50%

75%

100%

~~problems of conditions if any~~

**(5) Which is better, buried cable or aerial cable?**

no opinion

**(6) Space for equipment in MRC buildings and MTC buildings**

MRC: no building

MTC: not surveyed

**(7) Power Facility in MRC buildings and MTC buildings**

MRC: no facility

MTC: not surveyed

**(8) Which location is better for new switch, in MRC building or MTC building?**

MRC has no building.

Name of Sum: Orhontuul (P-1, 2005)

Date:9th October 2002 (Wednesday)

Time:12:15

- (1) Branching Points on MRC optic fiber route
  - MUX and Switch
- (2) Distance of branching routes from the Branching Points to MTC telephone office
  - 20.6 km (time at MTC Orhontuul: 13:15)
- (3) Road conditions on the branching routes
  - ~~paved~~
  - unpaved
  - road width: 3 m
  - road side
    - ~~used space (house etc.)~~
    - open space
- (4) Existing poles on the branching routes
  - ~~0%~~
  - ~~25%~~
  - ~~50%~~
  - 75%
  - ~~100%~~
  - ~~problems of conditions if any~~
- (5) Which is better, buried cable or aerial cable?
  - no opinion
- (6) Space for equipment in MRC buildings and MTC buildings
  - MRC
    - enough
  - MTC
    - Not surveyed
- (7) Power Facility in MRC buildings and MTC buildings
  - MRC: AC supply ~~Emergency Engine~~ battery
  - MTC: AC supply Emergency Engine ( not surveyed)
- (8) Which location is better for new switch, in MRC building or MTC building?
  - Orkhontuul is 20.6 km away from MRC Orkhontuul.

Name of Sum: Hongol (P-2, 2008)

Date: 10th October 2002 (Wednesday)

Time:

(1) Branching Points on MRC optic fiber route

There is a mechanical closure in a room.

(2) Distance of branching routes from the Branching Points to MTC telephone office

1.9 km

(3) Road conditions on the branching routes

~~paved~~

unpaved

road width: 6m near MTC

road side

~~used space (house etc.)~~

open space

(4) Existing poles on the branching routes

0%

~~25%~~

~~50%~~

~~75%~~

~~100%~~

problems of conditions if any: crossing the national road

(5) Which is better, buried cable or aerial cable?

no opinion

(6) Space for equipment in MRC buildings and MTC buildings

MRC

A little bit small

MTC

enough

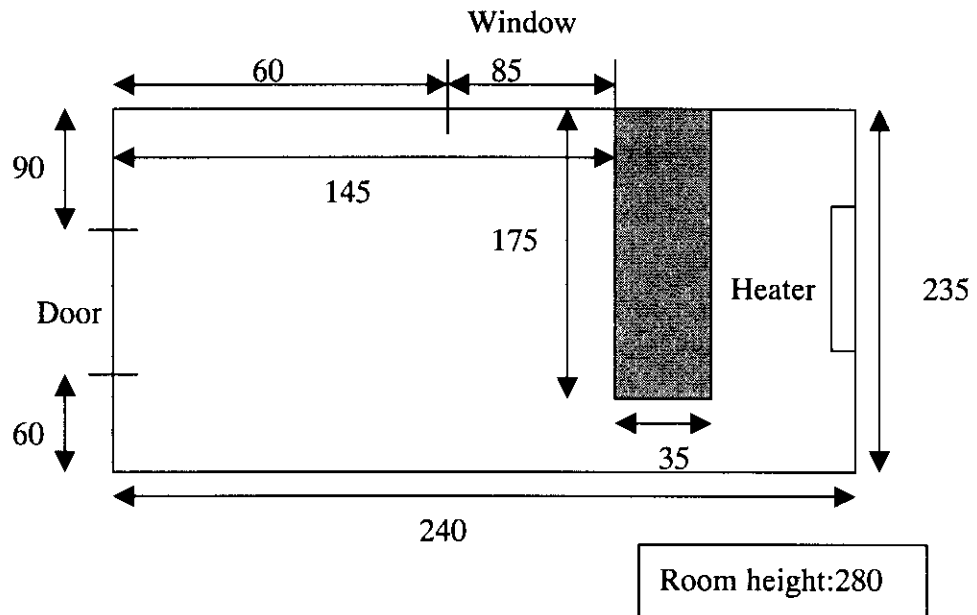
(7) Power Facility in MRC buildings and MTC buildings

MRC: AC supply Emergency Engine is in another building. Batteries are in concrete boxes.

MTC: AC supply ~~Emergency Engine~~ battery

(8) Which location is better for new switch, in MRC building or MTC building?

MTC building is near to bigger demand.



MRC room which has a mechanical closure

Name of Sum: Bayangol (P-1, 2004)

Date:10th October 2002 (Thursday)

Time: 10:20

(1) Branching Points on MRC optic fiber route

There is a mechanical closure in a room.

(2) Distance of branching routes from the Branching Points to MTC telephone office

1.0 km

(3) Road conditions on the branching routes

~~paved~~

unpaved

road width

road side

~~used space (house etc.)~~

open space

(4) Existing poles on the branching routes

0%

~~25%~~

~~50%~~

~~75%~~

~~100%~~

problems of conditions if any: crossing the national road

(5) Which is better, buried cable or aerial cable?

no opinion

(6) Space for equipment in MRC buildings and MTC buildings

MRC

enough

MTC

enough

(7) Power Facility in MRC buildings and MTC buildings

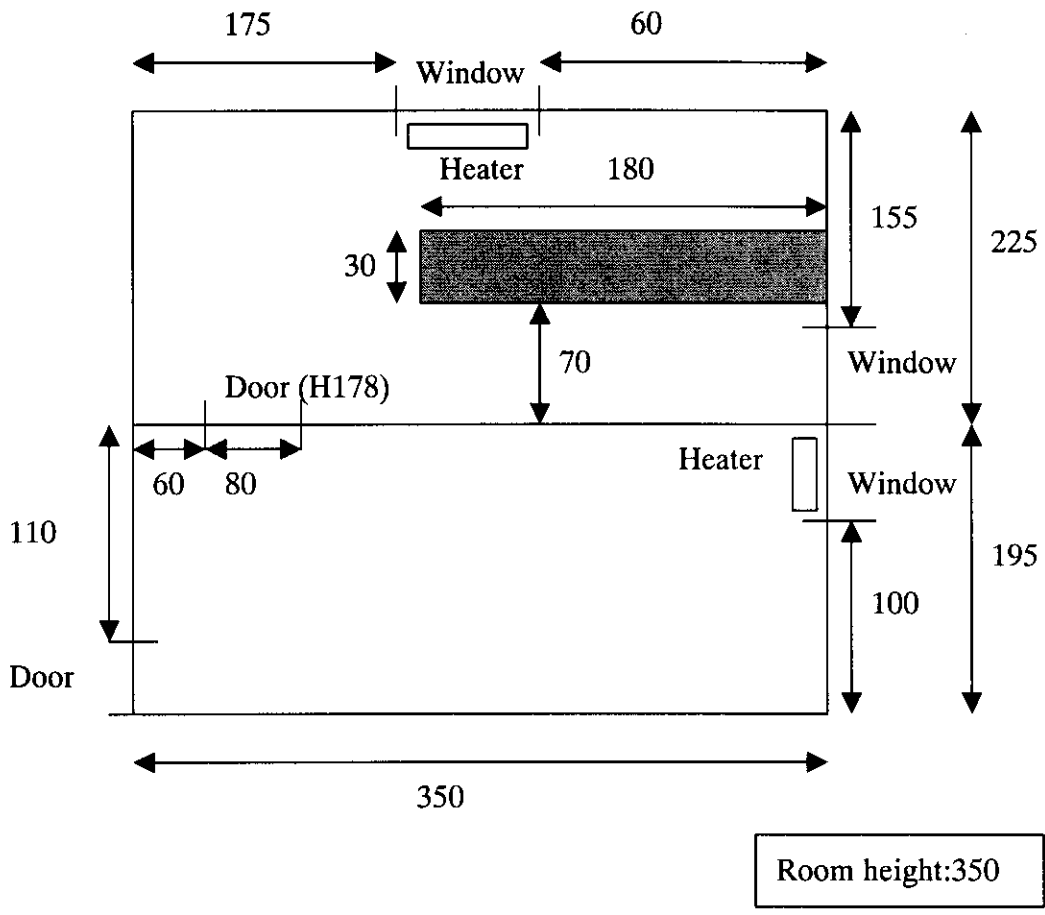
MRC: AC supply ~~Emergency Engine~~ Battery

MTC: AC supply Emergency Engine Battery

(8) Which location is better for new switch, in MRC building or MTC building?

MTC building is near to bigger demand.





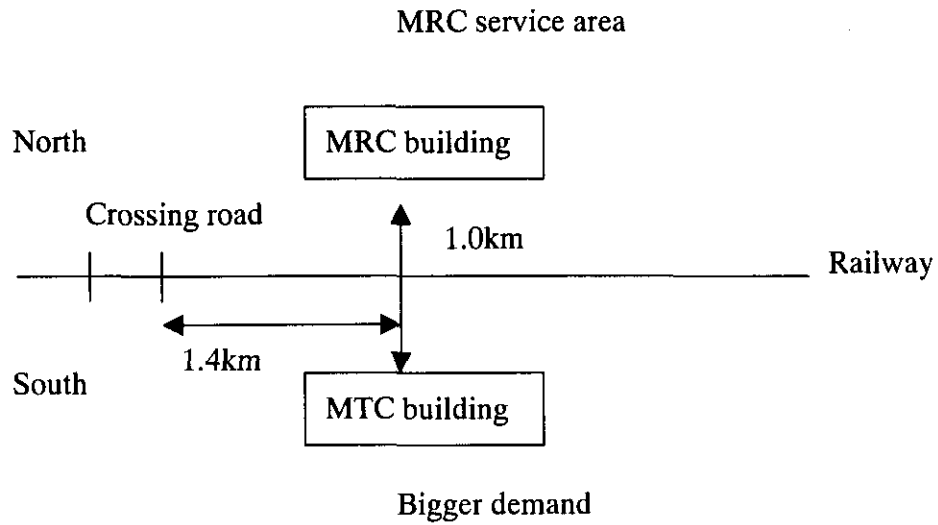
MRC room which has a mechanical closure

**Name of Sum: Zuunharaa (P-1, 2004)**

**Date: 10th October 2002 (Thursday)**

**Time: 11:55**

- (1) Branching Points on MRC optic fiber route
  - MUX and Switch
- (2) Distance of branching routes from the Branching Points to MTC telephone office
  - 1.0 km (when distance of straight line is measured.)
- (3) Road conditions on the branching routes
  - ~~paved~~
  - unpaved
  - road width
  - road side
  - ~~used space (house etc.)~~
  - open space
- (4) Existing poles on the branching routes
  - 0%
  - ~~25%~~
  - ~~50%~~
  - ~~75%~~
  - ~~100%~~
  - problems of conditions if any: crossing the railway
- (5) Which is better, buried cable or aerial cable?
  - aerial
- (6) Space for equipment in MRC buildings and MTC buildings
  - MRC
    - enough
  - MTC
    - enough
- (7) Power Facility in MRC buildings and MTC buildings
  - MRC: AC supply Emergency Engine Battery
  - MTC: AC supply ~~Emergency Engine~~ Battery
- (8) Which location is better for new switch, in MRC building or MTC building?



MTC building is located in the south side of the railway, and MRC building is located in the north side of the railway. MRC has 650 subscribers and its main service area is the north side of the railway, while the south side has bigger demand. Therefore, MTC has a reason to provide their own service area in Zuunharaa.

**1.4 WIRED ACCESS NETWORK SYSTEM SITE SURVEY  
RECORD**

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## 1.4 WIRED ACCESS NETWORK SYSTEM SITE SURVEY RECORD

### 1.4.1 OUTLINE OF THE SITE SURVEY

- (1) Title: Site Survey Record of OSP Team
- (2) Objectives of Survey: OSP data collection  
(Sum centre town map, Existing network diagram etc.)
- (3) Duration: Oct. 11 to 17, Oct. 19 to 25, 2002
- (4) Survey Site: ZB Ulaan, Burd, Khjirt, Kharhorin Sums in Uvurkhangai Aimag,  
Zuunburen, Shaamar, Sant, Zuunkhara Sums in Selenge Aimag
- (5) Surveyors: M. Okamoto (Study team)  
S. Tugsbileg (PTA)

### 1.4.2 ITINERARY

| Date       | Site, Organization  | Interviewee                           | Position                     | Objectives  |
|------------|---------------------|---------------------------------------|------------------------------|-------------|
| 11 Oct.    | Arvaikheer AC of MT | Mr. Yadamjav                          | GM of AC, MT                 | Basic data  |
| 12 Oct.    | ZB Ulaan SC of MT   | Mr. Tserennasan?                      | GM of SC, MT                 | Site survey |
| 13 Oct.    | Burd SC of MT       | Mr. Zolzaya                           | GM of SC, MT                 | Site survey |
| 14-15 Oct. | Khjirt SC of MT     | Mr. Jargal                            | GM of SC, MT                 | Site survey |
| 16-17 Oct. | Kharhorin SC of MT  | Ms. Oyungerel<br>Ms. Bolovmaa         | GM of SC, MT<br>CE of SC, MT | Basic data  |
| 19 Oct.    | Suhbaatar AC of MT  | Mr. Davgadorj<br>Ms. Tsend-Ayusts     | GM of AC, MT<br>CE of AC, MT | Basic data  |
| 20 Oct.    | Zuunburen SC of MT  | Ms. Gereltuya                         | GM of SC, MT                 | Site survey |
| 21-22 Oct. | Shaamar SC of MT    | Mr. Batnasan                          | GM of SC, MT                 | Site survey |
| 23 Oct.    | Sant SC of MT       | Ms. Siilegmaa                         | GM of SC, MT                 | Site survey |
| 24 Oct.    | Zuunkhara SC of MT  | Ms. Altantsetseg<br>Mr. Erdenechuluun | GM of SC, MT<br>CE of SC, MT | Site survey |
| 25 Oct.    | Darkhan AC of MT    | Mr. Altanhuyag<br>Ms. Battsetseg      | GM of AC, MT<br>CE of AC, MT | Basic data  |

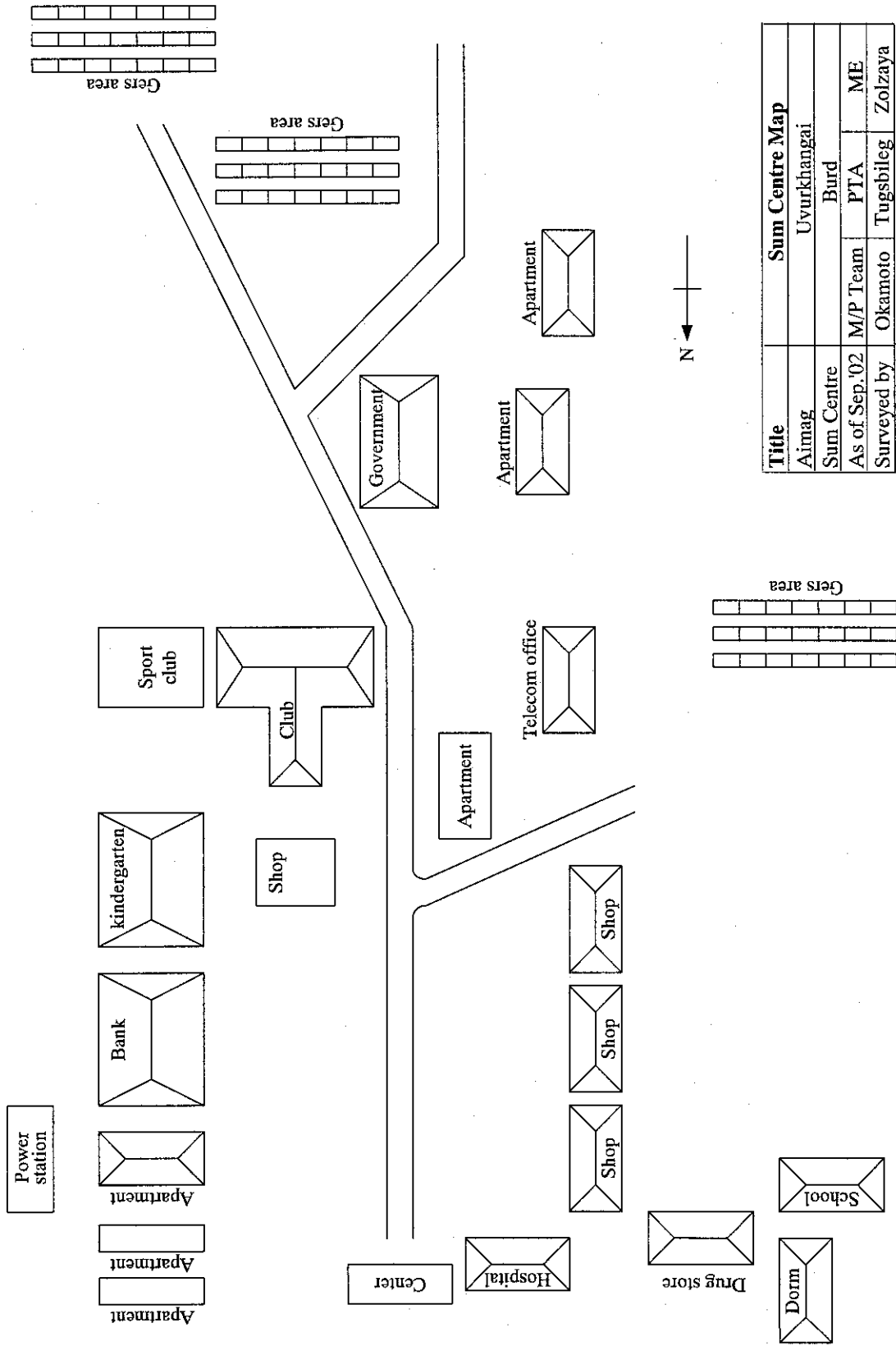
Note: AC: Aimag Centre  
SC: Sum Centre  
MT: Mongol Telecom  
GM: General Manager  
CE: Chief Engineer

### 1.4.3 Collected Data

Town map, Existing cable diagram: Attached

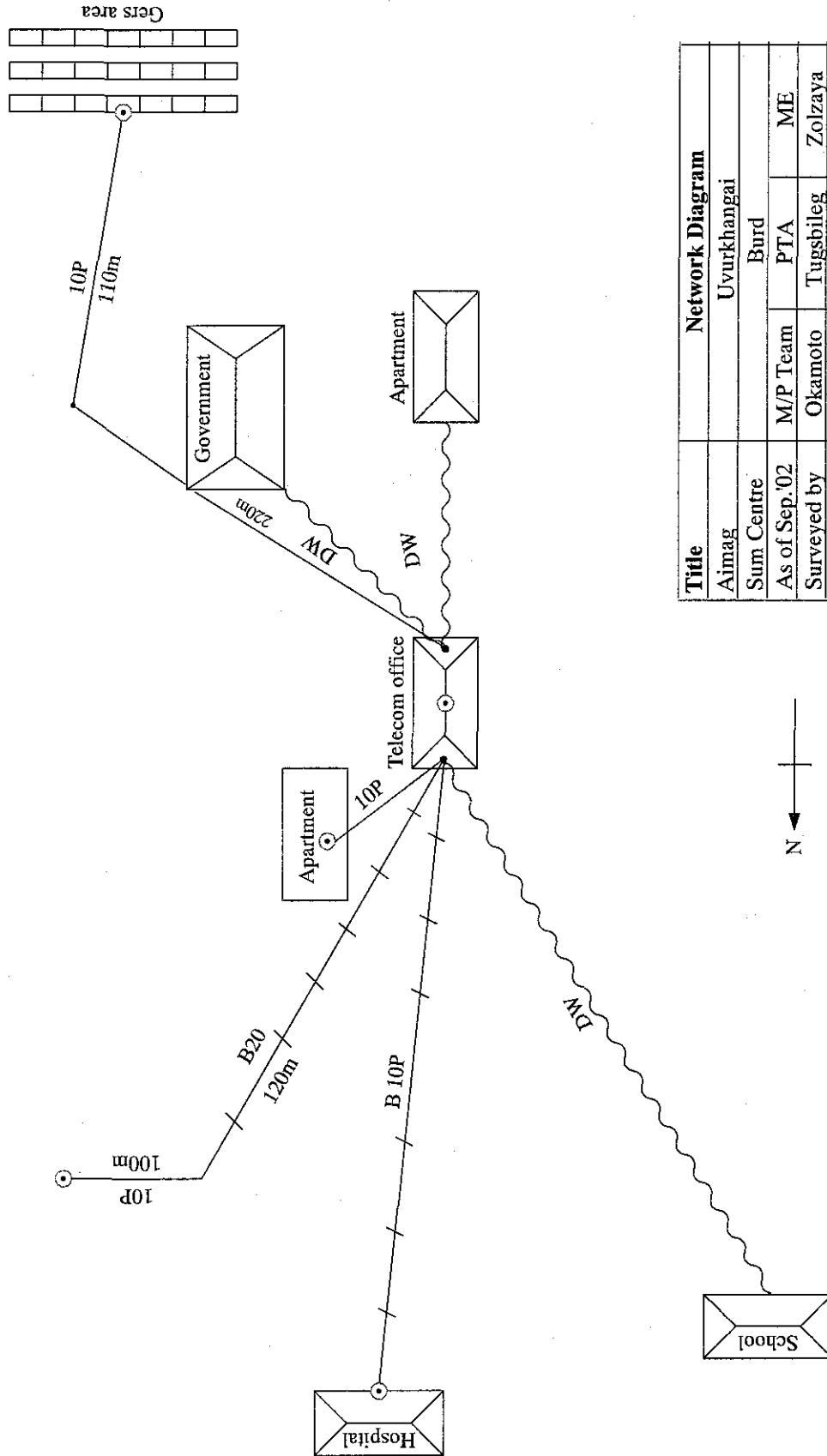
**List of Town Map and Cable Diagram**

|             |                                  |    |
|-------------|----------------------------------|----|
| Uvurkhangai | Burd (Map) .....                 | 3  |
|             | Burd (Network) .....             | 4  |
|             | Bat-ulzii (Map & Network) .....  | 5  |
|             | Bayangol (Network) .....         | 6  |
|             | Esunzuil (Map & Network) .....   | 7  |
|             | ZB Ulaan (Map).....              | 8  |
|             | ZB Ulaan (Network).....          | 9  |
|             | Nariilnteel (Map & Network)..... | 10 |
|             | Sant (Map) .....                 | 11 |
|             | Khujirt (Map).....               | 12 |
|             | Khujirt (Network).....           | 13 |
| Selenge     | Eruu (Map).....                  | 14 |
|             | Zuunburen (Map).....             | 15 |
|             | Zuunburen (Network).....         | 16 |
|             | Sant (Map) .....                 | 17 |
|             | Sant (Network).....              | 18 |
|             | Shaamar (Map) .....              | 19 |
|             | Shaamar (Network).....           | 20 |
|             | Bayangol (Network) .....         | 21 |



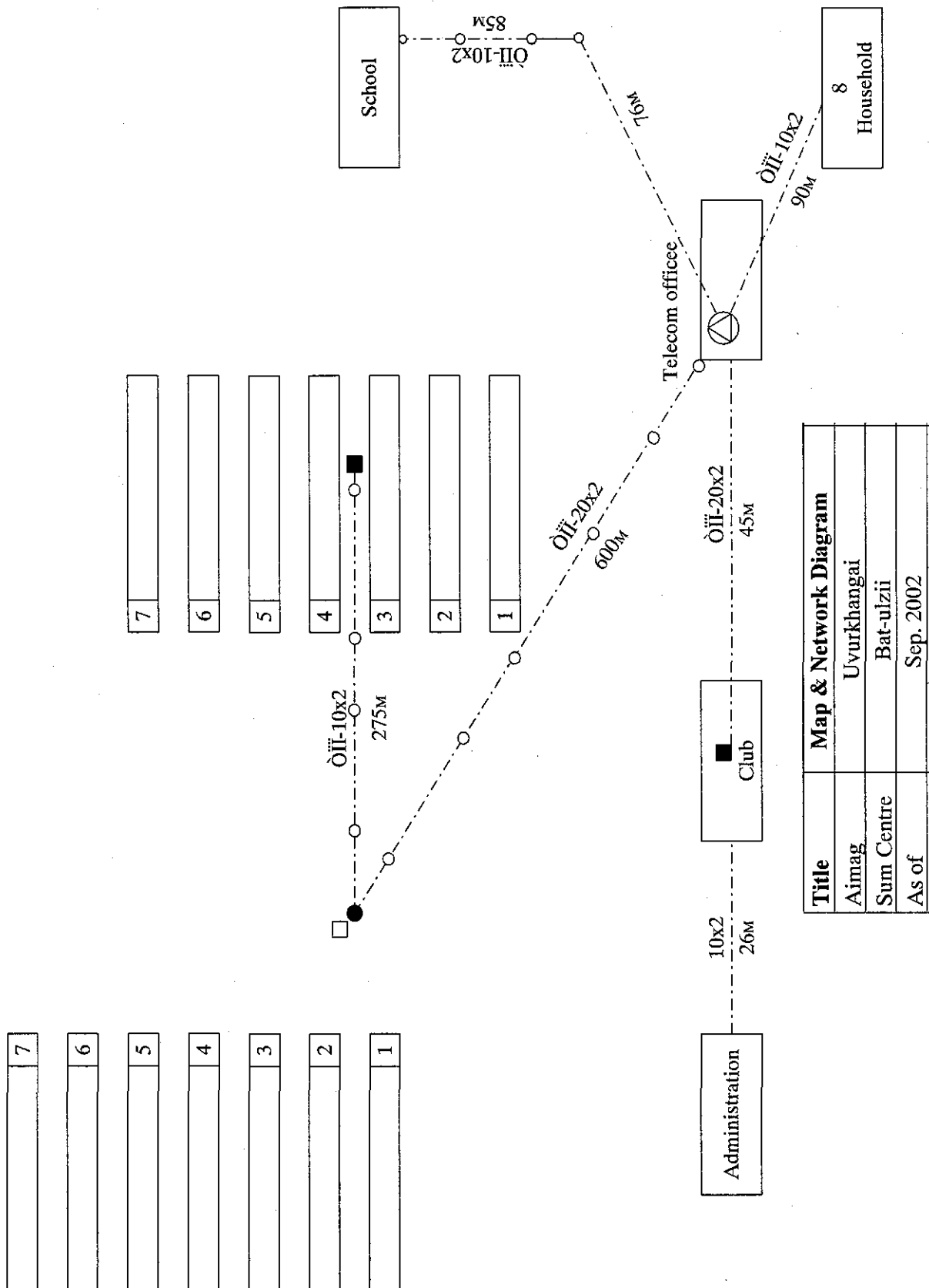
| Sum Centre Map |                           |
|----------------|---------------------------|
| Title          | Uvurkhangai               |
| Aimag          | Burd                      |
| Sum Centre     | PTA                       |
| As of Sep.'02  | M/P Team                  |
| Surveyed by    | Okamoto Tugsbileg Zolzaya |

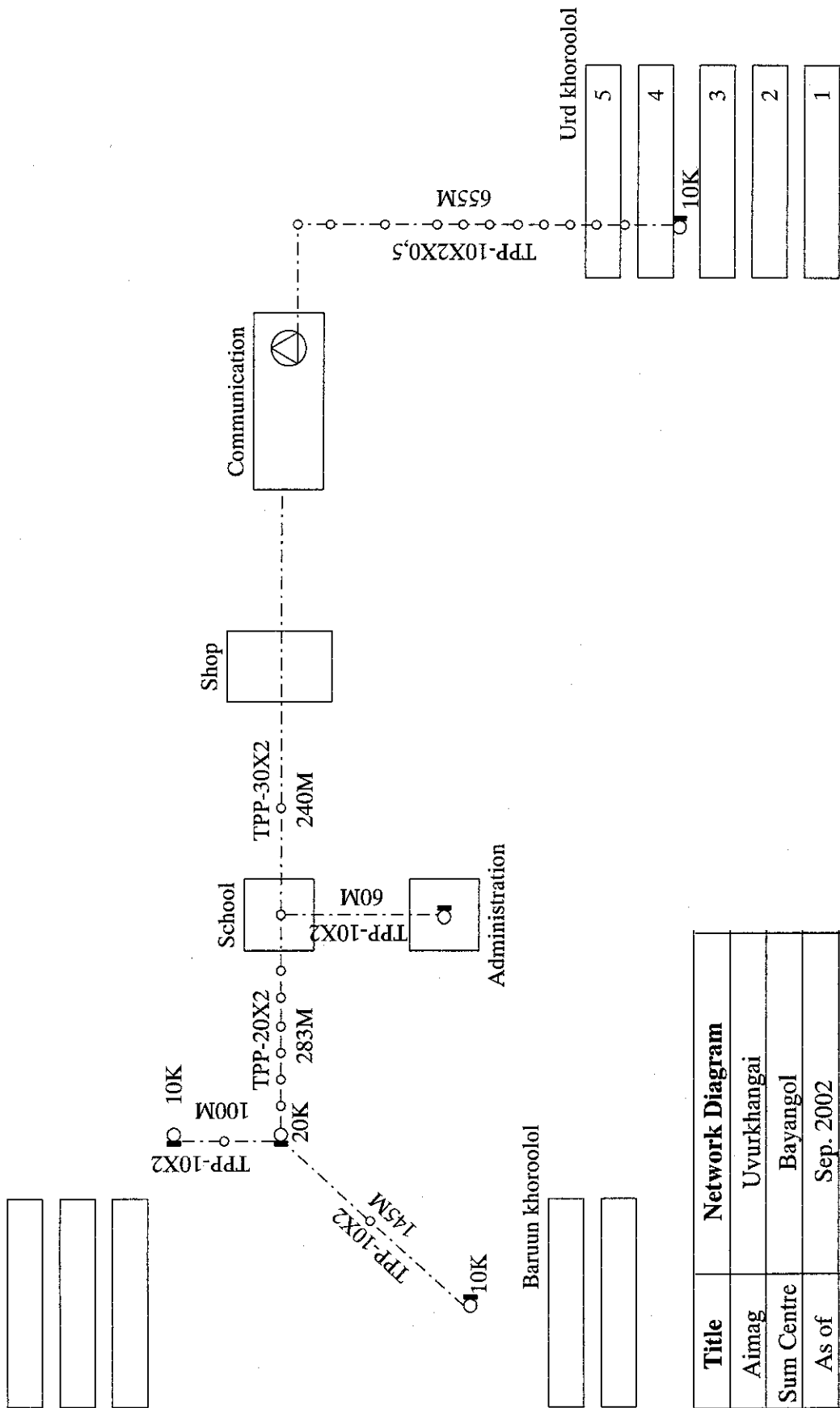


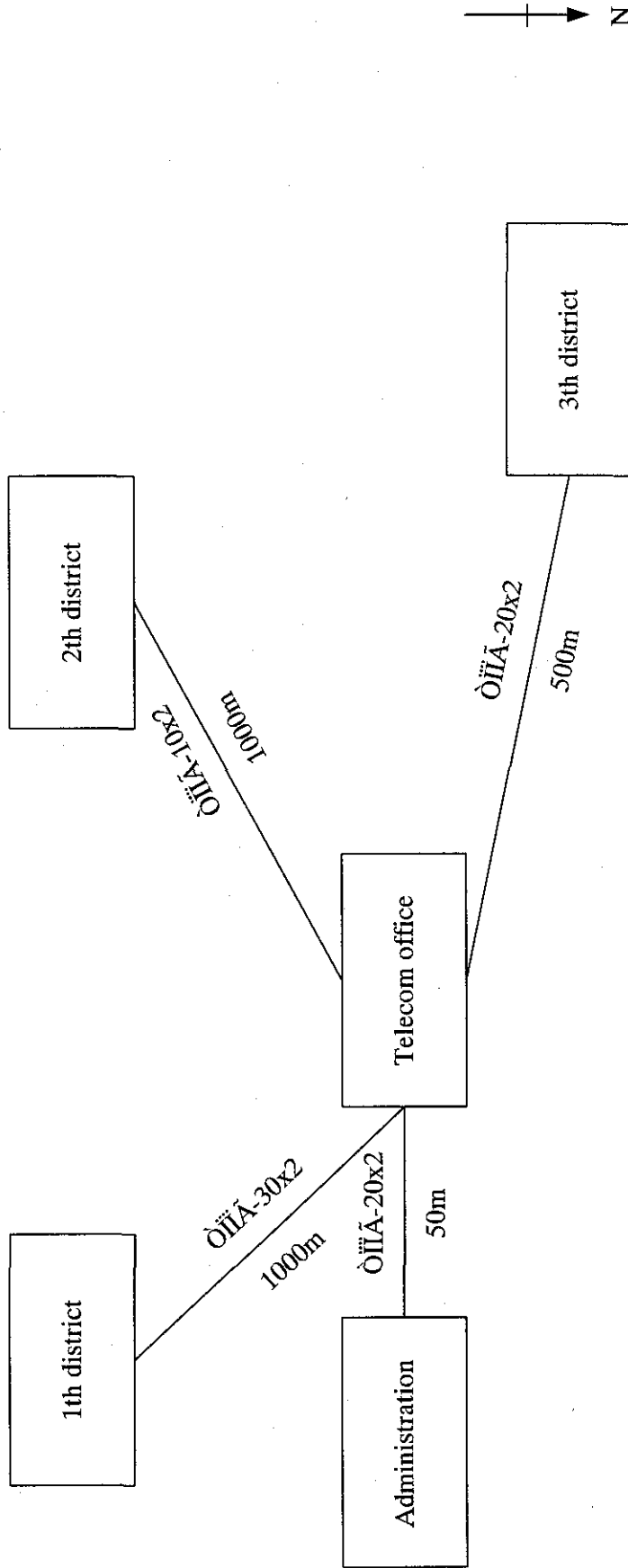


| Title          |  | Network Diagram |                   |
|----------------|--|-----------------|-------------------|
| Aimag          |  | Uvurkhangai     |                   |
| Sum Centre     |  | Burd            |                   |
| As of Sep. '02 |  | M/P Team        | PTA ME            |
| Surveyed by    |  | Okamoto         | Tugsbileg Zolzaya |

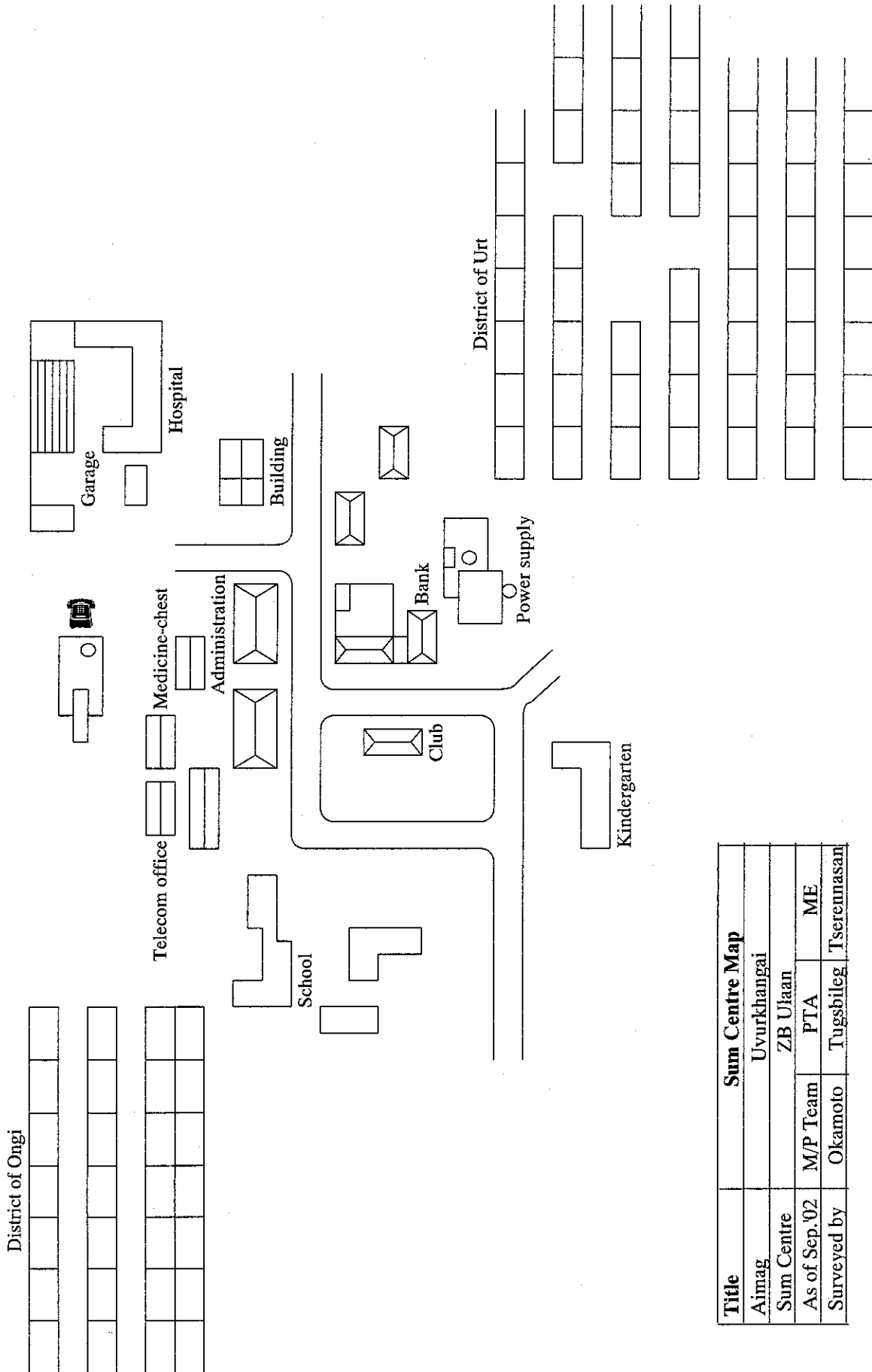




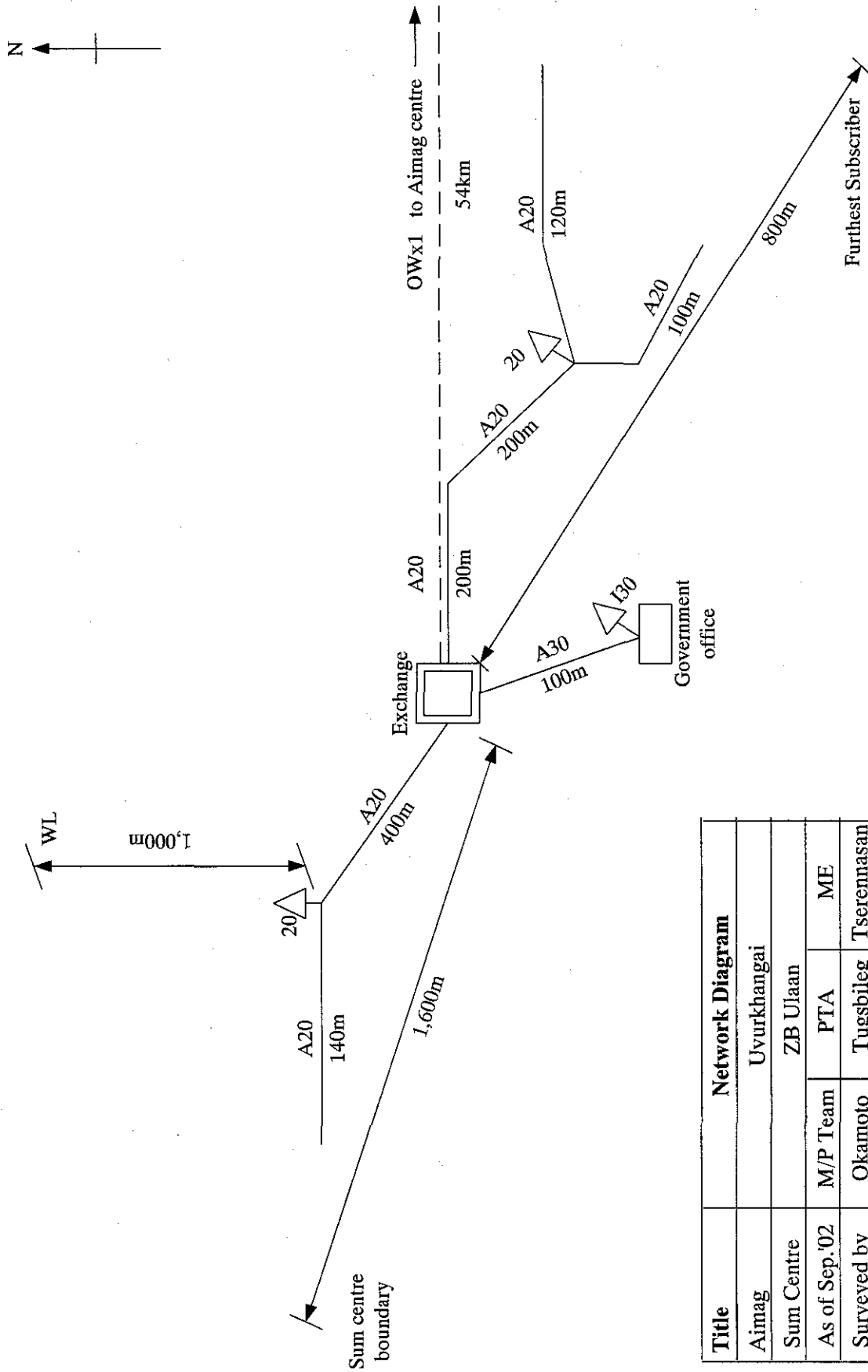




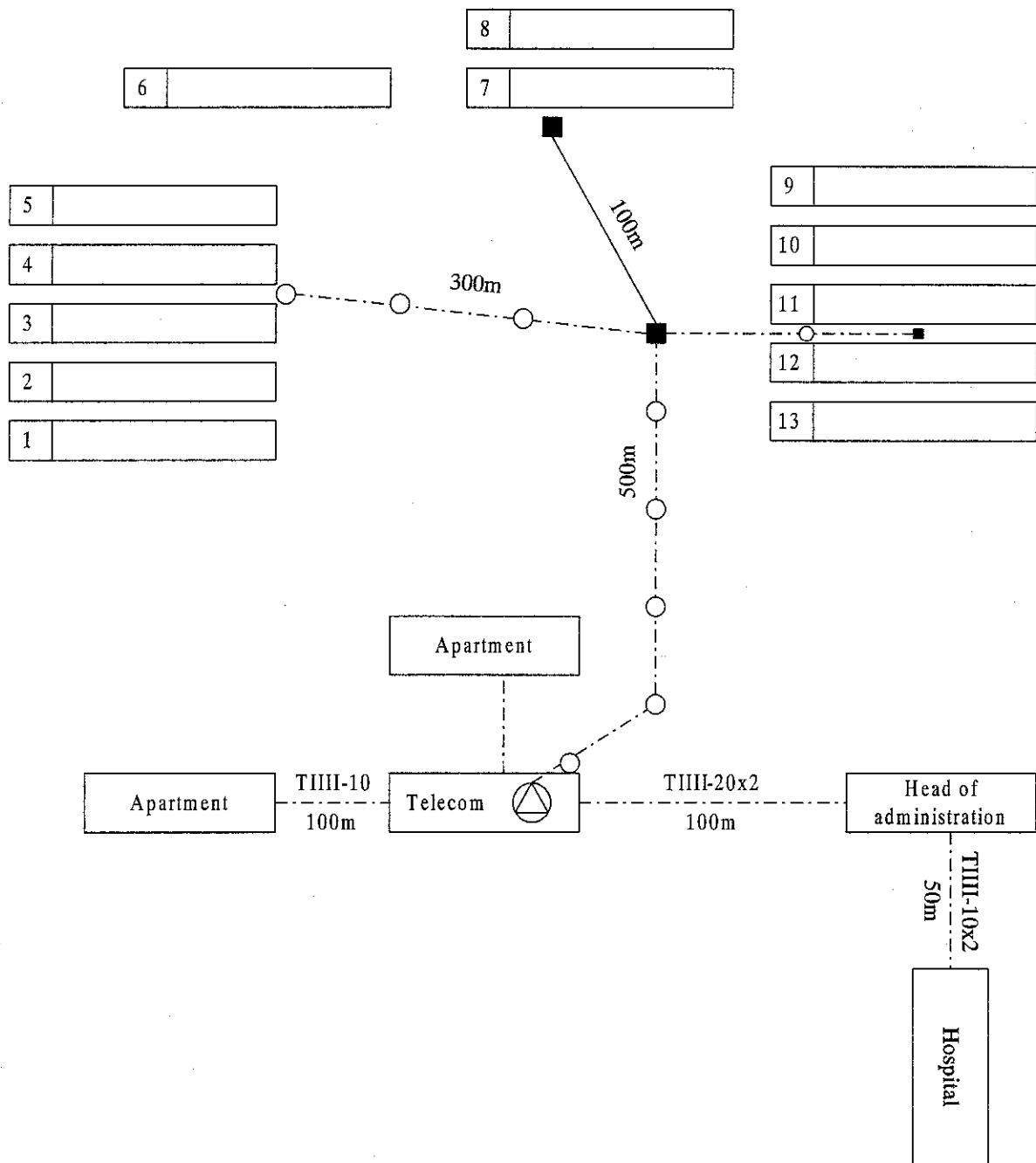
| Title      | Map & Network Diagram |
|------------|-----------------------|
| Aimag      | Uvurkhantai           |
| Sum Centre | Esunzuil              |
| As of      | Sep. 2002             |



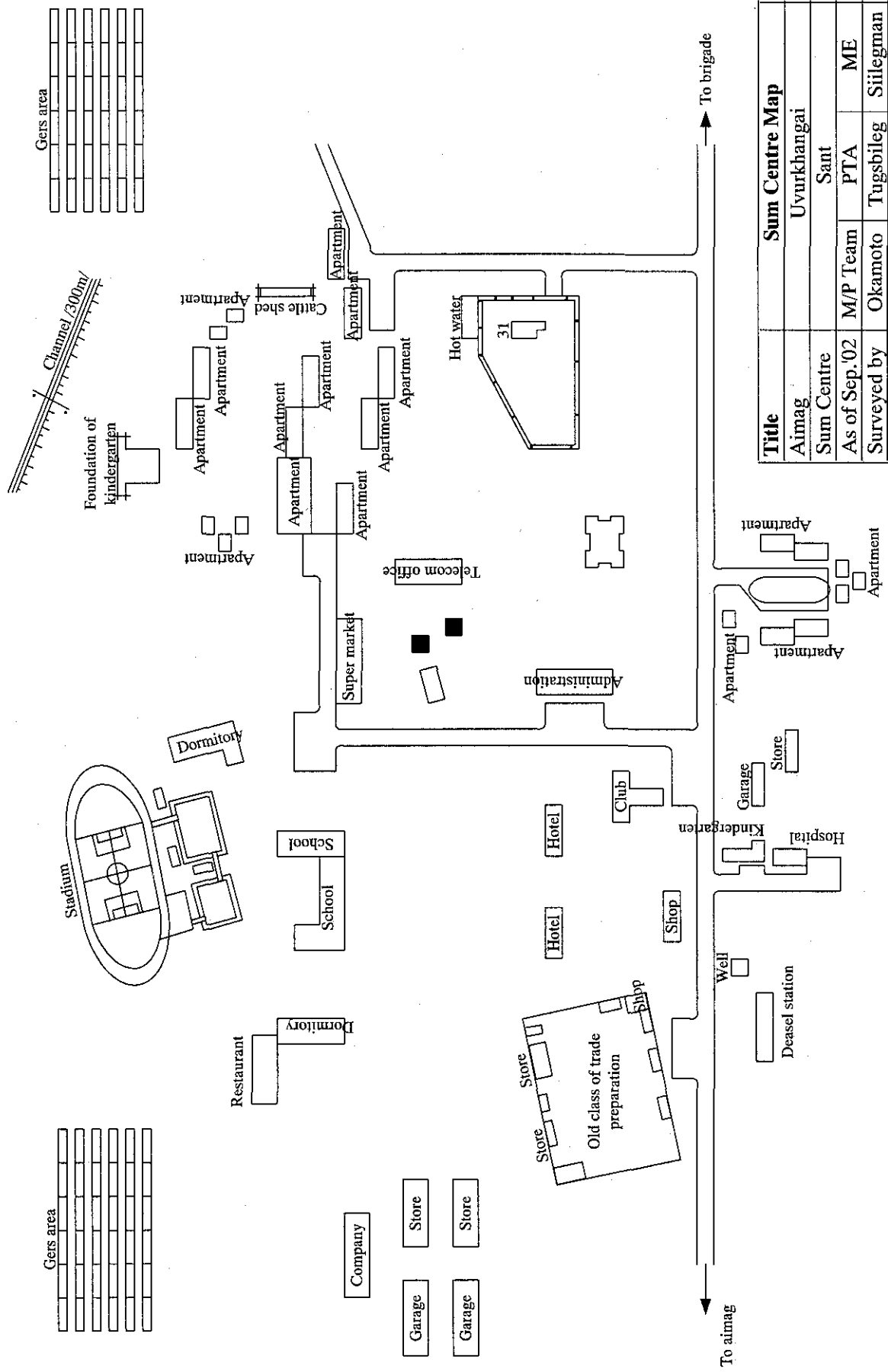
| Sum Centre Map |                               |
|----------------|-------------------------------|
| Aimag          | Uvurkhangai                   |
| Sum Centre     | ZB Ulaan                      |
| As of Sep.02   | M/P Team PTA ME               |
| Surveyed by    | Okamoto Tugsbileg Tserennasan |



| Network Diagram |             |           |             |
|-----------------|-------------|-----------|-------------|
| Aimag           | Uvurkhangai |           |             |
| Sum Centre      | ZB Ulaan    |           |             |
| As of Sep. '02  | M/P Team    | PTA       | ME          |
| Surveyed by     | Okamoto     | Tugsbileg | Tserenmasan |

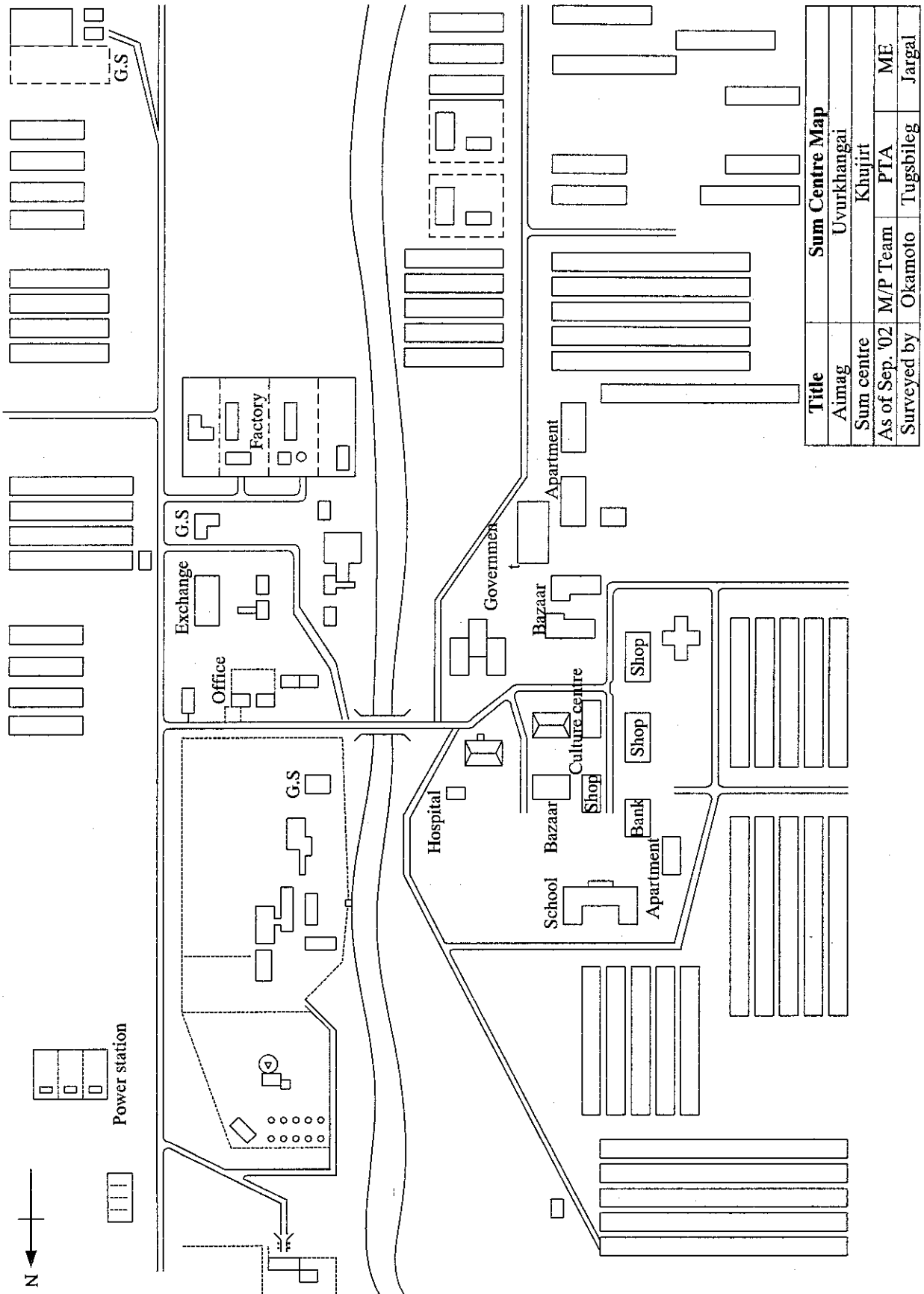


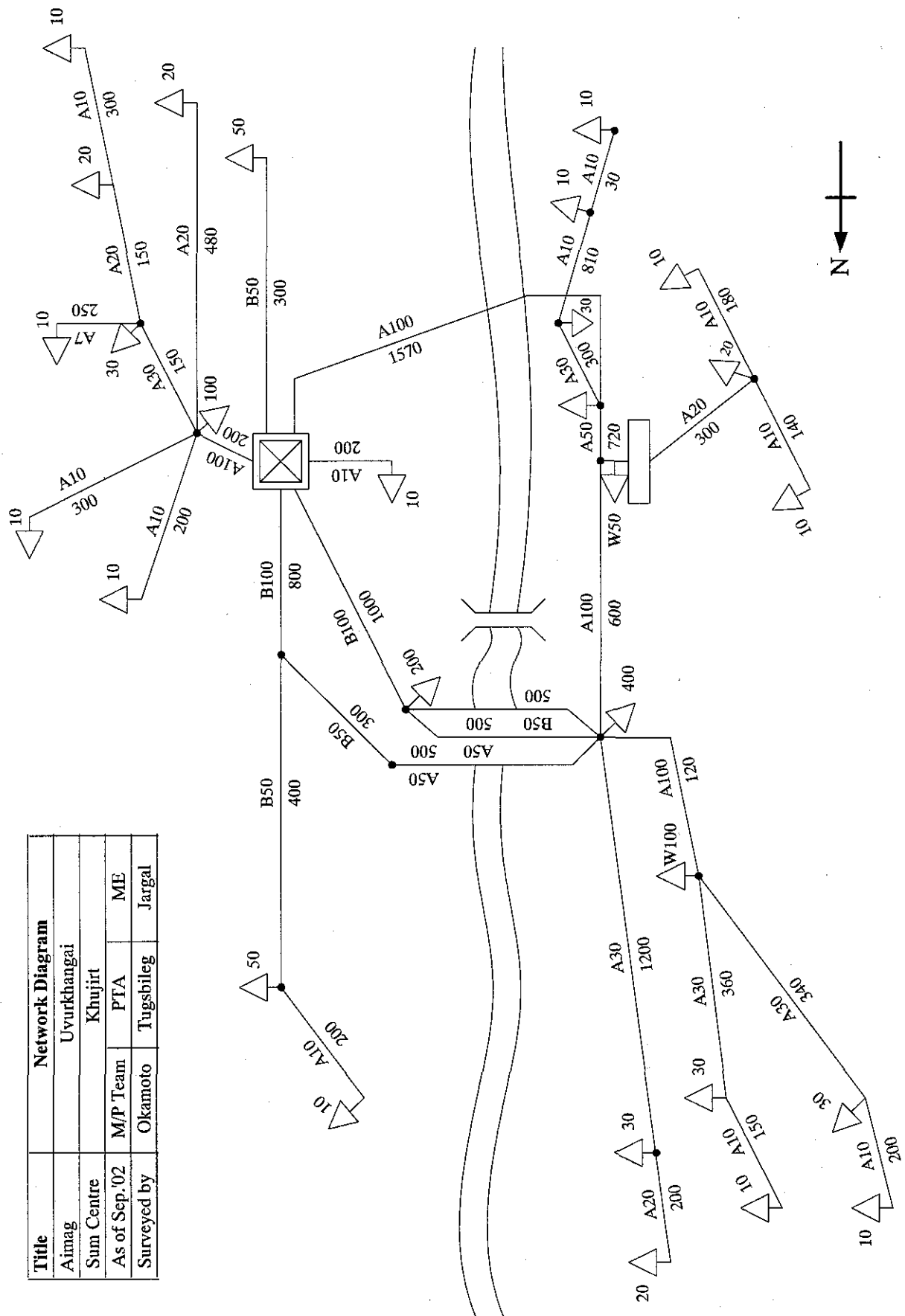
| Title      | Map & Network Diagram |
|------------|-----------------------|
| Aimag      | Uvurkhangai           |
| Sum Centre | Nariinteel            |
| As of      | Sep. 2002             |



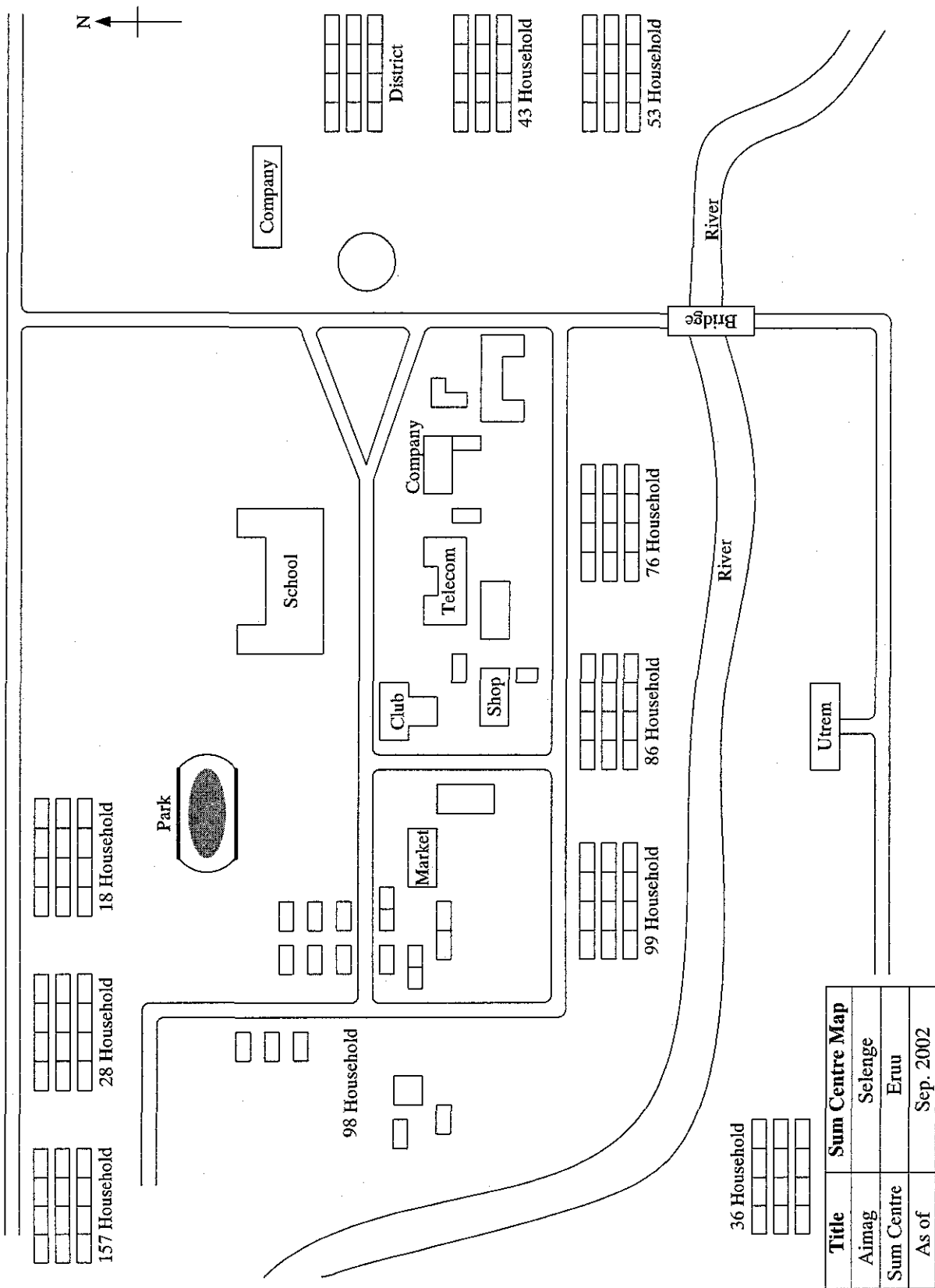
| Sum Centre Map |             |           |           |
|----------------|-------------|-----------|-----------|
| Title          | Uvurkhangai |           |           |
| Aimag          | Sant        |           |           |
| Sum Centre     | M/P Team    | PTA       | ME        |
| As of Sep.'02  | Okamoto     | Tugsbileg | Siilegman |
| Surveyed by    |             |           |           |

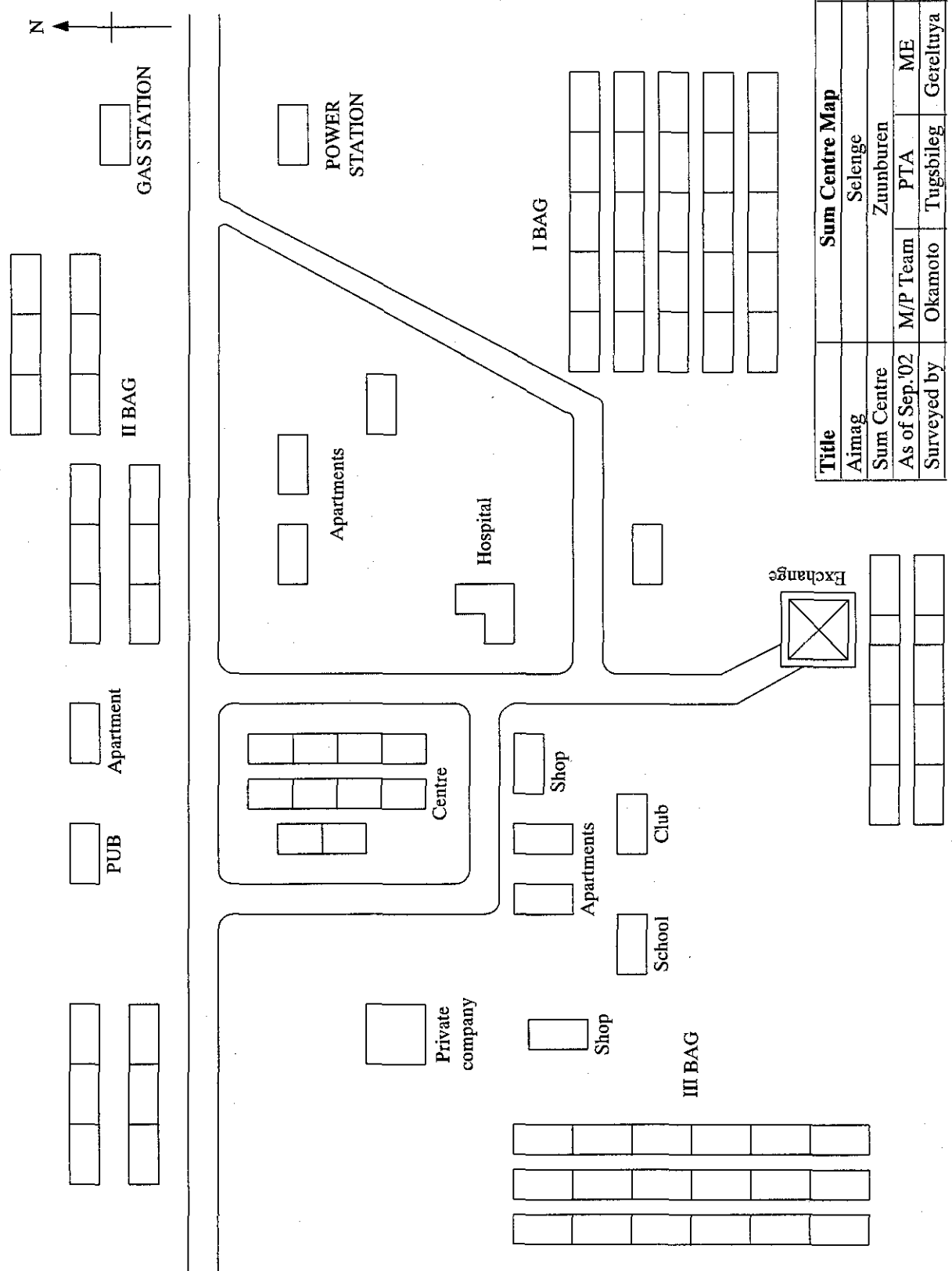


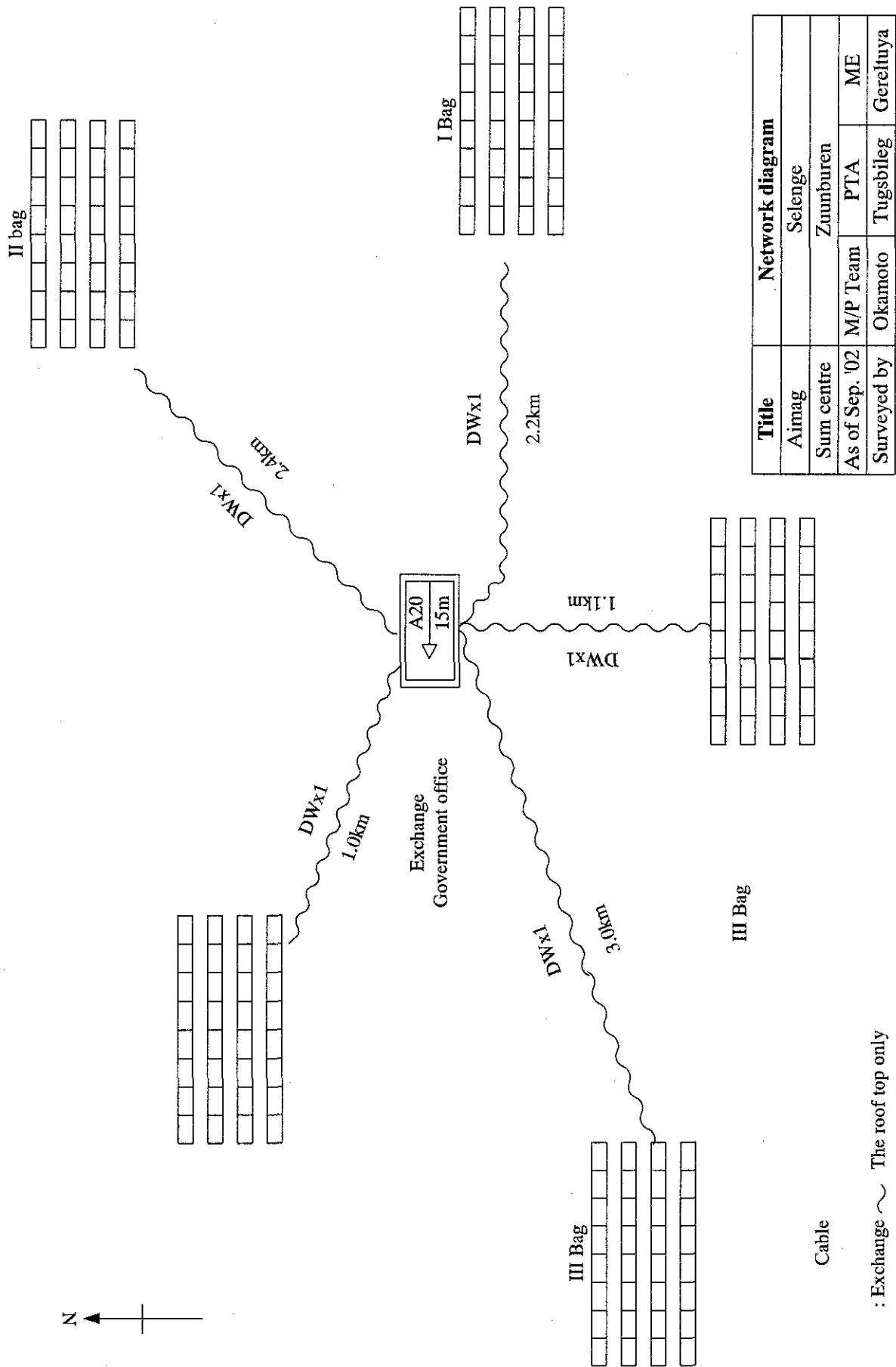


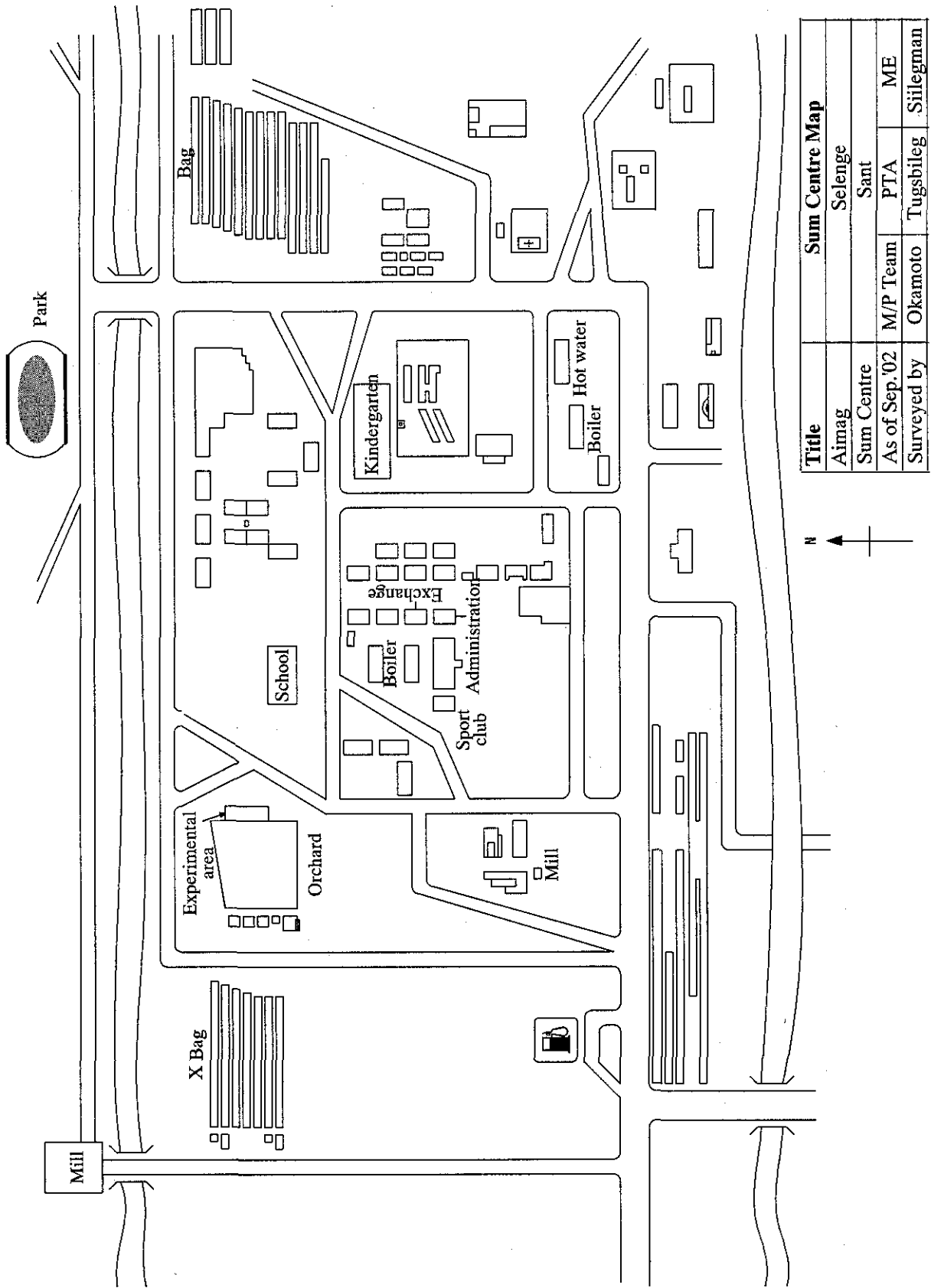


| Network Diagram |             |           |        |
|-----------------|-------------|-----------|--------|
| Title           | Uvurkhangai |           |        |
| Aimag           | Khujirt     |           |        |
| Sum Centre      | MP Team     | PTA       | ME     |
| As of Sep '02   | Okamoto     | Tugsbileg | Jargal |
| Surveyed by     |             |           |        |

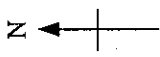
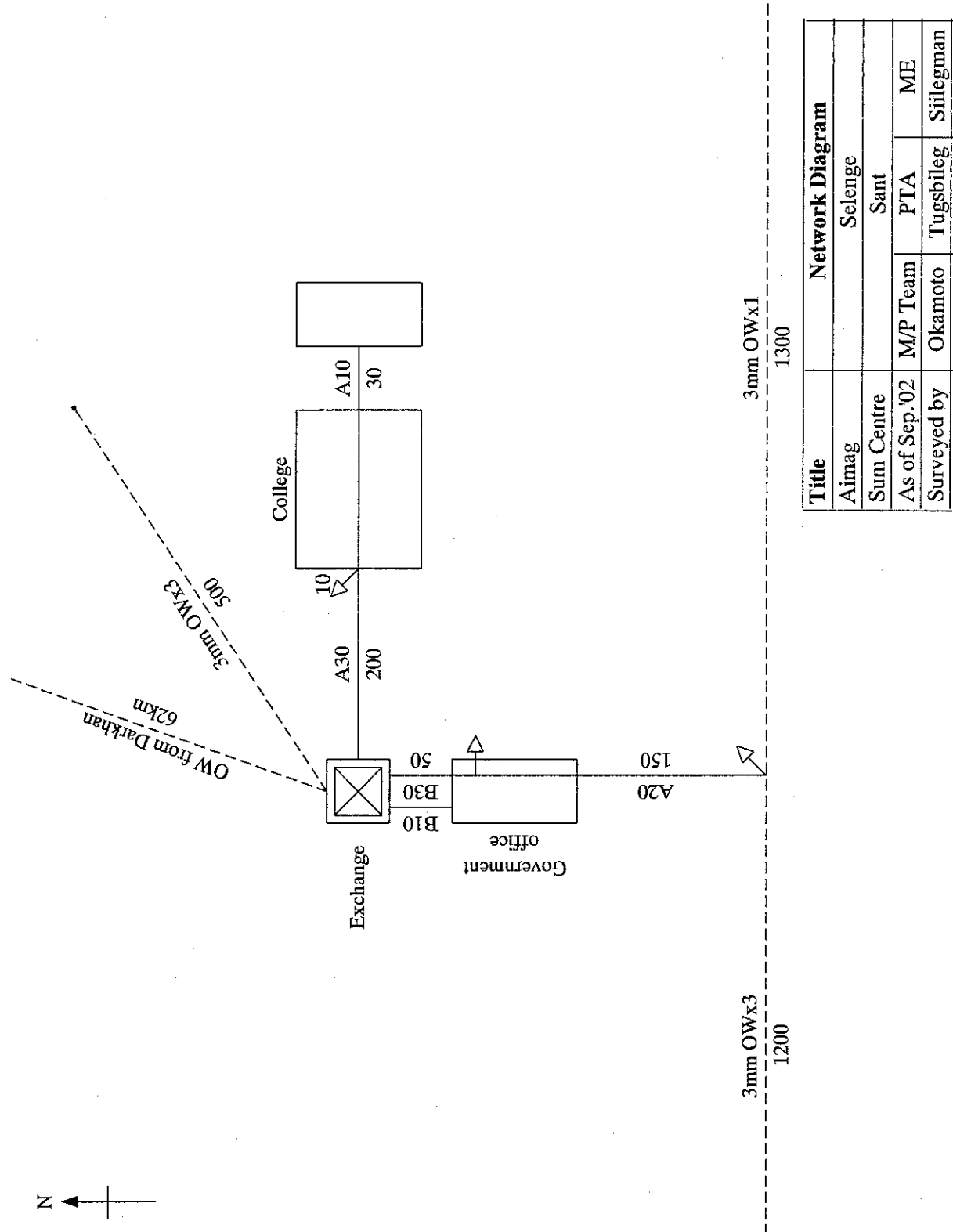


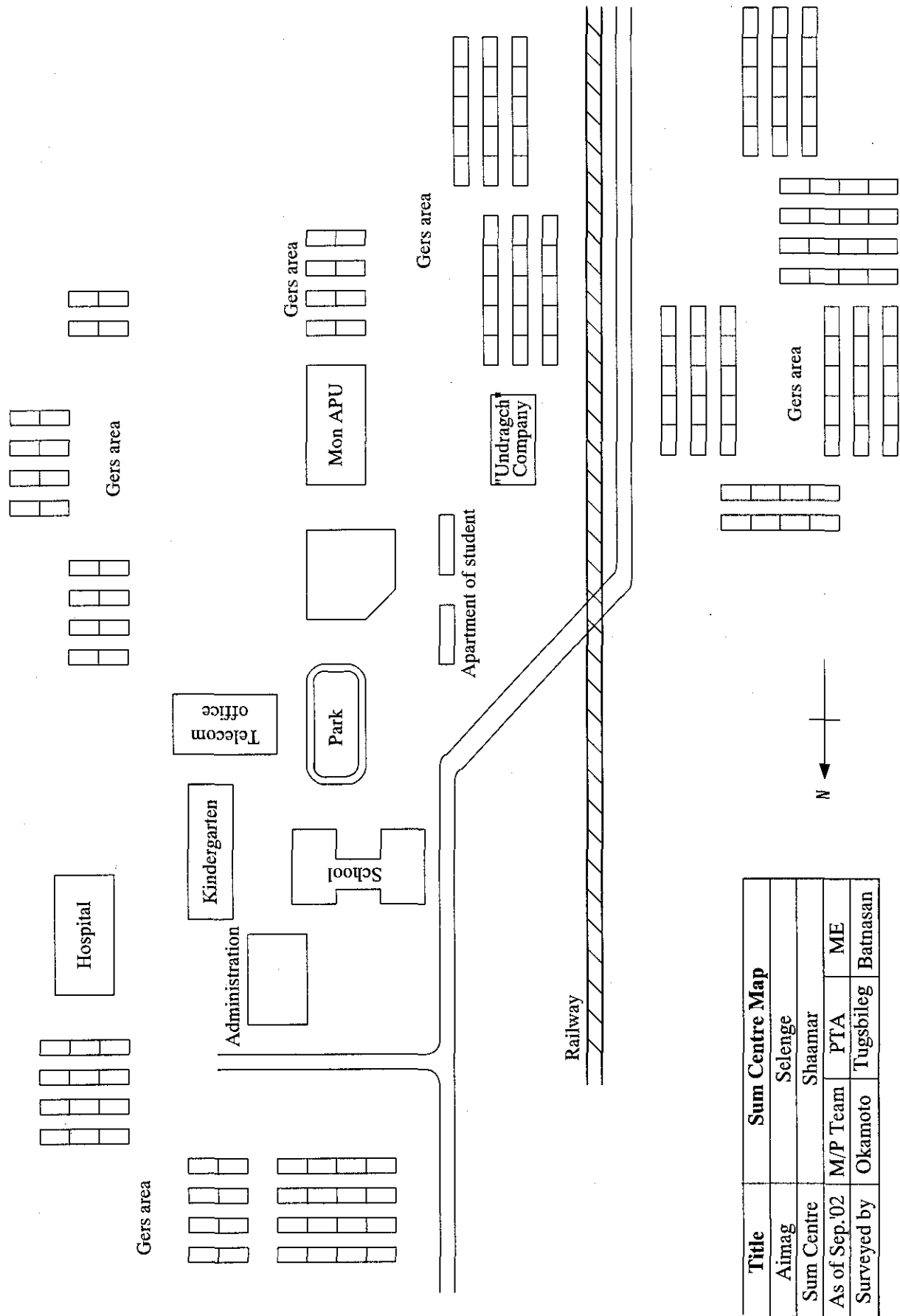






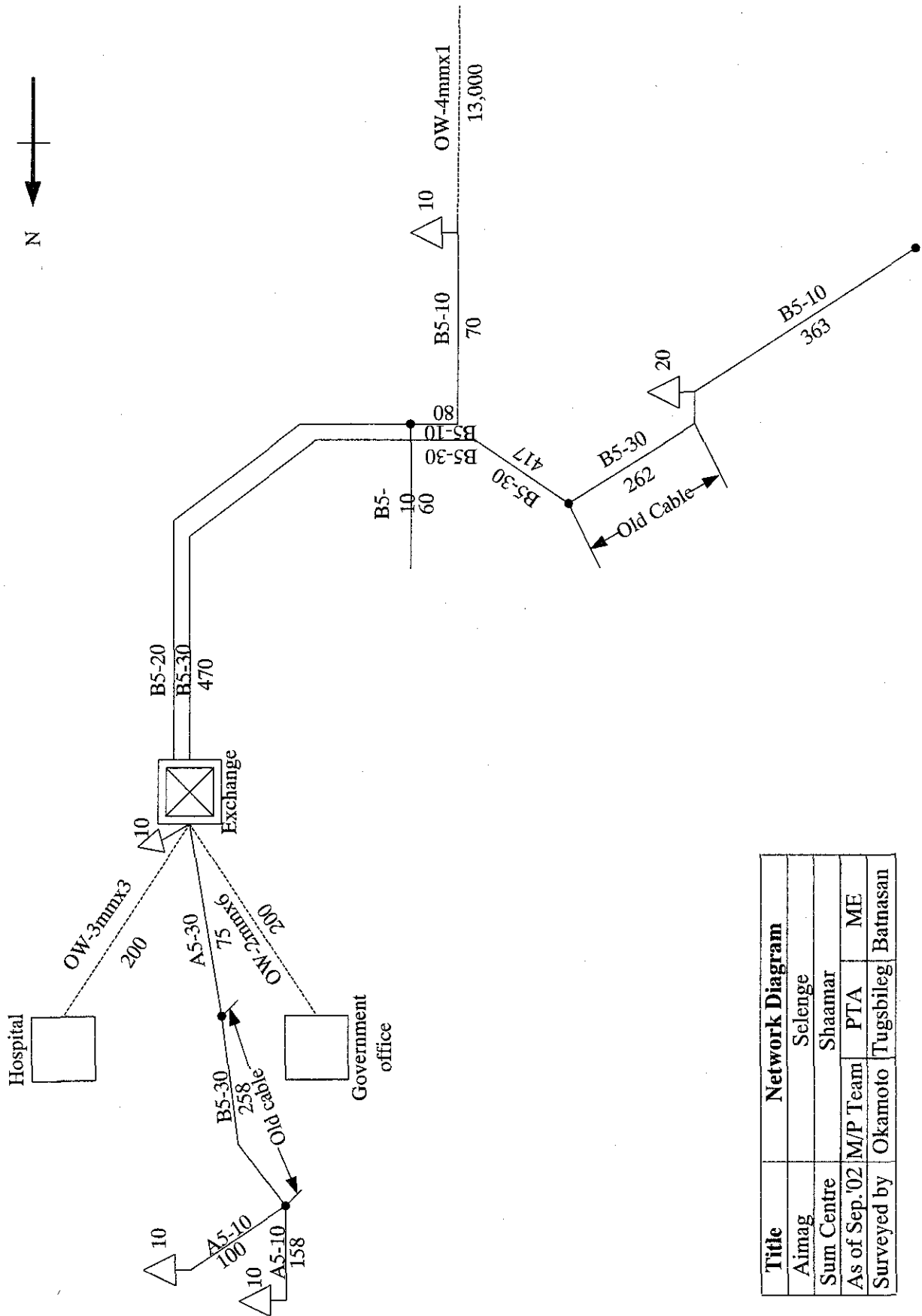
| Sum Centre Map |                             |
|----------------|-----------------------------|
| Title          | Selenge                     |
| Aimag          | Sant                        |
| Sum Centre     | PTA                         |
| As of Sep. 02  | M/P Team                    |
| Surveyed by    | Okamoto Tugsbileg Siilegman |





| Title          |          | Sum Centre Map |          |
|----------------|----------|----------------|----------|
| Aimag          | Selenge  |                |          |
| Sum Centre     | Shaamar  |                |          |
| As of Sep. '02 | M/P Team | PTA            | ME       |
| Surveyed by    | Okamoto  | Tugsbileg      | Batnasan |





| Title         |          | Network Diagram |          |
|---------------|----------|-----------------|----------|
| Aimag         | Selenge  | Sum Centre      | Shaamar  |
| As of Sep.'02 | M/P Team | PTA             | ME       |
| Surveyed by   | Okamoto  | Tugsbileg       | Batnasan |



**1.5 SUM CENTRE TELEPHONE OFFICE SITE SURVEY  
RECORD**

## 1.5 Sum Centre Telephone Office Site Survey Record

### 1. 1st Field Survey Summaries

| Reference | Site Survey Aimag | Aimag Centre and Sum Centre   | Implementation Period              |
|-----------|-------------------|---|------------------------------------|
| Table 1-1 | TUV               | <b>Zuunmod</b><br>Erdene, Delgerkhaan,<br>Bayantsagaan, Bayanjargalan, Zaamar, Lun,<br>Erdenesant, Bayanchandmani, Jargalant, Tseel | April 15 through April<br>18, 2002 |
| Table 1-2 | BULGAN            | <b>Bulgan</b><br>Khisig-ondor, Khutag, Mongod   | April 22 through April<br>26, 2002 |
| Table 1-3 | HENTII            | <b>Underkhaan</b><br>Dadal, Batonorov, Umonodelger, Jargalthaan   | April 22 through April<br>27, 2002 |
| Table 1-4 | UMUNU=GOVI        | <b>Dalanzadgad</b><br>Tsogtsetsii, Nomgon, Bayandalai   | April 22 through April<br>27, 2002 |
| Table 1-5 | GOVI-ALYAY        | <b>Altay</b><br>Sharga, Halion, Biger   | May 11 through May 16,<br>2002     |

### 2. 2nd Field Survey Summaries

| Reference | Site Survey Aimag | Aimag Centre and Sum Centre   | Implementation period                      |
|-----------|-------------------|---|--|
| 2-1       | UVURKHANGAI       | <b>Arvaiheer</b><br>Uyanga, Zuunbayan-ulaan, Bat Ulzy,<br>Guching-Us, Khujirt, Sant, Bayangol,<br>Tuglug, Kharakhorin | September 16 through<br>September 20, 2002 |
| 2-2       | DARKHAN-UUL       | <b>Darkhan</b><br>Sharin Gol, Khongol, Orkhon   | September 21 through<br>September 23, 2002 |
| 2-3       | SELENGE           | <b>Sukhbaatar</b><br>Zuunburan, Artanbulag, Eruu, Tsaganuur,<br>Khutul, Sant, Baruunburen, Orkhon-tuur,<br>Zuunkharaa | September 23 through<br>September 27, 2002 |

1. First Survey

TUV Aimag

(April 15 through April 18, 2002)

1.1 General Data Related to Telephone Services

| Aimag/Sum      | Area (sq. km) | Popula-tion | DEL  | Traffic per month (number of calls and paid minutes) |       |       |       |               |      |        |      | Waiters | House-hold | Bags |
|----------------|---------------|-------------|------|--|-------|-------|-------|---------------|------|--------|------|---------|------------|------|
|                |               |             |      | Local  |       | Trunk |       | International |      | Mobile |      |         |            |      |
|                |               |             |      | No.  | Min   | No.   | Min   | No.           | Min  | No.    | Min  |         |            |      |
| Zuunmod        | 1918          | 15295       | 1246 | n.a.   | 10719 | n.a.  | 27789 | n.a.          | 309  | n.a.   | n.a. | 145     | 3529       | 0    |
| Erdene         | 80.3          | 3353        | 15   | 6  | 30    | 420   | 1263  | 0             | 0    | n.a.   | n.a. | 0       | 903        | 5    |
| Delgerkhaan    | 216.8         | 2600        | 16   | 58   | 213   | 52    | 173   | n.a.          | n.a. | 46     | 122  | 9       | 614        | n.a. |
| Bayantsagaan   | 100.7         | 2815        | 13   | 111  | 387   | 152   | 476   | n.a.          | n.a. | 191    | 752  | 30      | 670        | n.a. |
| Bayanjargalan  | 237.7         | 1800        | 15   | 89   | 267   | 90    | 270   | 1             | 3    | 52     | 122  | 2       | 450        | n.a. |
| Zaamar         | 281.2         | 5714        | 32   | 40   | 130   | 130   | 600   | n.a.          | n.a. | 180    | 450  | n.a.    | 1362       | 4    |
| Lun            | 252.9         | 2874        | 110  | 80   | 258   | 353   | 1101  | 2             | 6    | 344    | 1019 | 16      | 86         | 6    |
| Erdenesant     | 186.8         | 5605        | 58   | 250  | 600   | 500   | 1200  | 3             | 6    | n.a.   | n.a. | 40      | 1402       | 7    |
| Bayanchandmani | 613.1         | 3813        | 54   | 138  | 531   | 259   | 897   | 4             | 20   | 516    | 1442 | 34      | 807        | 3    |
| Jargalant      | 186.8         | 6078        | 55   | 487  | 1114  | 632   | 1564  | 2             | 3    | 719    | 1541 | 20      | 1480       | 4    |
| Tseel          | 163           | 3314        | 15   | 61   | 169   | 100   | 287   | 0             | 0    | 135    | 349  | 20      | 814        | 5    |

DEL: Direct exchange line. Trunk: National long distance call. Mobile: Calls to mobile phone.

1.2 Telecommunications Facilities

| Item   | Zuunmod        | Erdene       | Delgerkhaan       | Bayantsagaan | Bayan jargalan | Zaamar       | Lun          | Erdeneant    | Bayanchandmani | Jarge-lent   | Tseel        |
|--|----------------|--------------|-------------------|--------------|----------------|--------------|--------------|--------------|----------------|--------------|--------------|
| Switching Equipment                                | EWSD (RSU)     | ATSC/50/200  | Panasonic KXTA616 | ATCK/50/200  | ATCK/50/200    | ATCK/50/200  | Panasonic    | ATCK/50/200  | ATSC/50/200    | ATSC/50/200  | ATSC/50/200  |
| Type (Digital/Analog)                              | D              | A (XB)       | Digital           | A (XB)       | A (XB)         | A (XB)       | Digital      | A (XB)       | A (XB)         | A (XB)       | A (XB)       |
| Manufacturer                                       | Sierence       | Russian      | Japan made        | Russian      | Russian        | Russian      | Japanmade    | Russian      | Russian        | Russian      | Russian      |
| Year installed                                     | 2001           | n.a.         | 2000              | 1985         | 1985           | 1988         | 2002         | 1978         | 1974           | 1988         | 1989         |
| Capacity   | 2016           | 100          | 16                | 50           | 50             | 50           | 256          | 50           | 100            | 100          | 100          |
| Transmission system (VSAT/MW/OF/TOW)               | OF/AMW         | OW           | OW (steel, 1987)  | MW (4 ct)    | MW (4 ct)      | MW (4ch)     | OW (bronze)  | OW (1978)    | OW (1971)      | OW (1976)    | OW (1980)    |
| Multiplex Equipment                                | PCM (10E1)     | OB3-3        | OB3-3             | Nokia        | Nokia          | Radio link   | OB3-3        | no           | no             | no           | no           |
| Wired local loop (OSP)                             | Duct + Aerial  | Aerial (30P) | Aerial (10P)      | Aerial       | Aerial (20P)   | Aerial       | Aerial       | Aerial       | Aerial         | Aerial       | Aerial       |
| Number of payphone                                 | n.a.           | no           | no                | no           | no             | no           | no           | no           | no             | no           | no           |
| No. of users per day at Service counter            | n.a.           | n.a.         | n.a.              | n.a.         | n.a.           | n.a.         | n.a.         | n.a.         | n.a.           | n.a.         | 20           |
| TV broadcasting                                    | MTV Russia     | MTV Russia   | MTV Russia        | MTV Russia   | MTV Russia     | MTV Russia   | MTV Russia   | MTV Russia   | MTV Russia     | MTV Russia   | MTV Russia   |
| No. of TV set                                      | n.a.           | 86           | 100               | 60           | 100            | n.a.         | 200          | 300          | 388            | 1400         | 350          |
| FM Radio broadcasting                              | Yes (105.5MHz) | no           | no                | no           | no             | no           | no           | no           | no             | no           | no           |
| Wired Radio broadcasting (no. of user)             | Yes            | no           | n.a.              | n.a.         | n.a.           | n.a.         | n.a.         | n.a.         | n.a.           | n.a.         | no           |
| No. of CATV users                                  | No             | no           | no                | no           | no             | no           | no           | no           | no             | no           | no           |
| No. of Internet users                              | Yes            | no           | no                | no           | no             | no           | no           | no           | no             | no           | no           |
| No. of PC (personal computer)                      | n.a.           | 3            | 1                 | 3            | 3              | 5            | 3            | 3            | 9              | 6            | 5            |
| No. of Mobile telephone users                      | Yes            | no           | no                | no           | no             | no           | no           | no           | no             | no           | no           |
| Power Supply System                                | COM+ DEG       | COM+ Battery | COM+ Battery      | COM+ Battery | COM+ Battery   | COM+ Battery | COM+ Battery | COM+ Battery | COM+ Battery   | COM+ Battery | COM+ Battery |
| Power failure occurrence rate                      | 7/Year         | n.a.         | n.a.              | n.a.         | n.a.           | 2 to 3/year  | 4            | 4/year       | 1 to 2 /year   | 5 to 6 /year | 10/Year      |
| Number of staff of telephone office                | 8              | 2            | 2                 | 2            | 3              | 2            | 4            | 2            | 4              | 3            | 2            |
| Service hours/shift                                | 24 hours       | 8 hours      | 9 - 18            | 9 - 18       | 9 - 18         | 9 - 18       | 9 - 18       | 9 - 18       | 8 hours        | 8 hours      | 8 hours      |
| Failure rate per line                              | 32 cb/hour     | n.a.         | n.a.              | n.a.         | n.a.           | n.a.         | n.a.         | 1/Month      | n.a.           | n.a.         | n.a.         |
| No. of Schools                                     | n.a.           | 2            | 1                 | 1            | 1              | 2            | 1            | 1            | 2              | 1            | 1            |
| No. of Hospitals/clinics                           | n.a.           | 1            | 1                 | 1            | 1              | 1            | 1            | 1            | 1              | 1            | 1            |
| Radio station installed (HF, VHF) provided by JICA | 2              | 7            | 5                 | 7            | 6              | 4            | 6            | 7            | 5              | 5            | 5            |

## Remarks

Contact Person:      General Manager of Zuunmod (Mr.Nyamdorj) ,  
                                 Chief Engineer (Mr.Ottonhxyy)  
                                 General Manager of Naraikh/Erdene (Ms.Bayanbatar)  
                                 General Manager of Bayanchandmani (Ms.Munkhoyun)  
                                 General Manager of Jargalan (Ms. Bagalmaa)  
                                 General Manager of Tseel (Ms.Enkhtuya)

**NOTE**

Additional questions items :

- (1)    Number of schools (primary, secondary, high school, university)
- (2)    Number of hospitals/clinics (number of doctors, number of beds)
- (3)    Number of Pay Phone, Number of Mobile telephone, Number of Fax, Number of Internet Users or Internet Service Provider
- (4)    Calling Rate, traffic of subscriber lines and inter-exchange circuits
- (5)    Number of PC (4) Number of TV/Radio set
- (6)    Number of Installed Radio station (HF or VHF Transceiver) provided by Japanese government
- (7)    Number of nomadic people
- (8)    Monthly failure rate per telephone subscriber line, situation of operation of maintenance matters
- (9)    VSAT /TV R.O. satellite transmission equipment installed or not, HF or VHF Radio transmission station installed or not
- (10)   Situation of Microwave transmission system(manufacturer, type, transmission route, system configuration ,frequency band used and channel capacity), Open-wire system(transmission route, channel capacity), wired or wireless local loop(outside plant, wire-less local loop system), switching equipment(Manufacturer, Local Exchange, Toll Switch, Type and switching capacity), commercial power supply system (including Diesel Engine Generators, Solar Battery system)
- (11)   Number of staff of telephone switching office

## 2. First Field Survey

### Bulgan Aimag

(April 22 through April 26, 2002)

### 2.1 General Data Related to Telephone Services

| Aimags/Sum   | Area size (Km <sup>2</sup> ) | Population | No. of Telephone Line (telephone) | Local Call/Month |      | Long Distant Call/Mon. |       | International Call/Mon. |      | Mobile Telephone/Mon |      | Wait-ers | No. of house-hold | No. of bag |
|--------------|------------------------------|------------|-----------------------------------|------------------|------|------------------------|-------|-------------------------|------|----------------------|------|----------|-------------------|------------|
|              |                              |            |                                   | No.              | Min  | No.                    | Min   | No.                     | Min  | No.                  | Min  |          |                   |            |
| Bulgan       | 100                          | 12623      | 1252                              | 3696             | 8588 | 12142                  | 32739 | 96                      | 401  | 1850                 | 6474 | 65       | 3125              | 6          |
| Khisig-Ondor | 2455                         | 3395       | 40                                | 226              | 855  | 310                    | 1177  | n.a.                    | n.a. | 139                  | 439  | 5        | 893               | n.a.       |
| Khutag       | 5605                         | 4495       | 88                                | 588              | 1790 | 232                    | 1095  | 1.3                     | 6    | 292                  | 905  | 41       | 1110              | n.a.       |
| Mongod       | 252.4                        | 2815       | 28                                | 492              | 995  | 199                    | 850   | n.a.                    | n.a. | 73                   | 364  | 12       | 820/23            | n.a.       |



## 2.2 Telecommunication Facilities

|  |                           |                         |                            |                                  |
|--|---------------------------|-------------------------|----------------------------|----------------------------------|
| Study items  | Bulgan                    | Khisig Ondor            | Khutag                     | Mongod                           |
| Name of Switching Equipment                        | SDE                       | ATCK-50/200             | Hicom 318                  | Panasonic-32                     |
| Type(Digital/Analog)                               | Digital                   | Analogu                 | Digital                    | Digital                          |
| Manufacturer                                       | Siemence                  | Russian made            | Hongkong made              | Japan made                       |
| Year installed                                     | 1997                      | 1995                    | 2000                       | 2000                             |
| Capacity   | 1384                      | 40                      | 100                        | 30                               |
| Transmission system (VSAT/Micro/Open wire)         | Microwave<br>PPC<br>NL-24 | Microwave<br>+Open wire | Open Wire<br>Steel<br>1957 | Open Wire<br>Steel<br>1957       |
| Study items  | Bulgan                    | Khisig Ondor            | Khutag                     | Mongod                           |
| Multiplex Equipment                                | PCM                       | 7-303                   | OB 3-3                     | OB 3-3                           |
| Wired local loop (OSP)                             | Duct +Aerial              | 50 P                    | 150P                       | n.a.                             |
| Number of payphone                                 | n.a.                      | NO                      | NO                         | NO                               |
| No. of users per day at Service counter            | n.a.                      | n.a.                    | n.a.                       | n.a.                             |
| TV broadcasting                                    | MN, Russia,<br>China      | MN<br>Russia, China     | MN<br>Russia               | MN<br>Russia                     |
| No. of TV set                                      | 1890                      | 230                     | 370                        | 140                              |
| FM Radio broadcasting                              | n.a.                      | No                      | No                         | No                               |
| Wired Radio broadcasting(No. of user)              | n.a.                      | 80                      | Yes                        | No                               |
| No. of CATV users                                  | n.a.                      | NO                      | NO                         | NO                               |
| No. of Internet users                              | n.a.                      | NO                      | 1                          | NO                               |
| No. of PC  | 14                        | 3                       | 2                          | 1                                |
| No. of Mobile telephone users                      | 460                       | NO                      | NO                         | NO                               |
| Power Supply System                                | Com.Power                 | Com.Power               | Com.Power                  | Com.Power<br>(Central Grid)      |
| Emergency Power Supply (DEG or Batt.)              | DEG                       | Batt                    | Batt                       | Batt                             |
| Power failure occurrence rate                      | n.a.                      | 2 to 3 per quarter      | Only Planned<br>Outage     | 1 to 2 when<br>repaired          |
| Number of staff of telephone office                | 67                        | 3                       | 5                          | 3                                |
| Service hours/shift                                | 24 hour/4 shift           | 12 hours/2 shift        | 12 hours/2 shift           | 9 a.m. to 9 p.m.                 |
| Failure rate per line                              | 20.6                      | 2.8                     | 26.1                       | 1 per quarter                    |
| No. of Schools                                     | 3                         | 1                       | 1                          | 1 (8 Years)                      |
| No. of Hospitals/clinics                           | 4                         | 1/20 bed                | 1/22 bed                   | 1/16 bed                         |
| Radio station installed (HF, VHF) provided by JICA | 4                         | 7                       | 6                          | 1(JICA)<br>6(Grass Root<br>Fund) |

## 2.3 Participants

JICA study team : Mr. Y. Ishihara

Counterpart : Mr. Zolbayar

Interpreter : Ms. S. Abiko

Local consultants : AMARSOFT Co., Ltd.

## NOTE

### Additional questions items :

- (1) Number of schools (primary, secondary, high school, university)
- (2) Number of hospitals/clinics (number of doctors, number of beds)
- (3) Number of Pay Phone, Number of Mobile telephone, Number of Fax, Number of Internet Users or Internet Service Provider
- (4) Calling Rate, traffic of subscriber lines and inter-exchange circuits
- (5) Number of PC (4) Number of TV/Radio set
- (6) Number of Installed Radio station (HF or VHF Transceiver) provided by Japanese government
- (7) Number of nomadic people
- (8) Monthly failure rate per telephone subscriber line, situation of operation of maintenance matters
- (9) VSAT /TV R.O. satellite transmission equipment installed or not, HF or VHF Radio transmission station installed or not
- (10) Situation of Microwave transmission system(manufacturer, type, transmission route, system configuration ,frequency band used and channel capacity), Open-wire system(transmission route, channel capacity), wired or wireless local loop(outside plant, wire-less local loop system), switching equipment(Manufacturer, Local Exchange, Toll Switch, Type and switching capacity), commercial power supply system (including Diesel Engine Generators, Solar Battery system)
- (11) Number of staff of telephone switching office
- (12) Existing Outside Plant System (subscriber telephone line route map)

**3. First Field Survey**

**Hentii Aimag**

(April 22 through April 27, 2002)

**3.1 General Data Related to Telephone Services**

| Aimag/Sum   | Area size (Km2) | Popula-tion | No. of Telephone Line (telephone subscriber) | Local Call/Month |      | Long Distant Call/Mon. |       | International Call/Mon. |      | Mobile Telephone/Month |      | Wait-er | No. of house-hold | No. of bag |
|-------------|-----------------|-------------|--|------------------|------|------------------------|-------|-------------------------|------|------------------------|------|---------|-------------------|------------|
|             |                 |             |  | No.              | Min  | No.                    | Min   | No.                     | Min  | No.                    | Min  |         |                   |            |
| Underhaan   | 2456            | 16313       | 1153   | 1602             | 5125 | 12010                  | 38411 | 75                      | 247  | n.a.                   | n.a. | 308     | 4198              | 8          |
| Dadal       | 4727            | 2387        | n.a.   | 246              | 856  | 231                    | 738   | n.a.                    | n.a. | n.a.                   | n.a. | n.a.    | 668               | 6          |
| Batonorov   | 4968            | 2986        | n.a.   | 334              | 1105 | 242                    | 799   | n.a.                    | n.a. | n.a.                   | n.a. | n.a.    | 768               | 9          |
| Umnodelger  | 9764            | 5739        | 22   | 225              | 646  | 331                    | 993   | n.a.                    | n.a. | n.a.                   | n.a. | 30      | 1457              | 8          |
| Jargalthaan | 2752            | 2073        | 32   | 240              | 842  | 242                    | 850   | n.a.                    | n.a. | n.a.                   | n.a. | 53      | 538               | 5          |

## 3.2 Telecommunication Facilities

|  |  |                     |                     |                     |   |
|--|--|---------------------|---------------------|---------------------|---|
| Study items  | Unerhaan   | Dadal               | Batonorov           | Umnodelger          | Jargalhaan  |
| Name of Switching Equipment                        | EWSD   | n.a.                | n.a.                | MC-52               | MC-52   |
| Type (Digital/Analog)                              | Digital  | n.a.                | n.a.                | Analogue            | Analogue  |
| Manufacturer                                       | Siemens  | n.a.                | n.a.                | MC electronics      | MC electronics  |
| Year installed                                     | 2001   | n.a.                | n.a.                | 1999                | 1999  |
| Switching Capacity                                 | 1640   | n.a.                | n.a.                | 20                  | 52  |
| Study items  | Unerhaan   | Dadal               | Batonorov           | Umnodelger          | Jargalhaan  |
| Transmission system (VSAT/Micro/Open wire)         | VSAT+ Microwave KYPC-4 Russian, 1985,4GHz, 300ch | Open wire 2 channel | Open wire 1 channel | Open wire 1 channel | Microwave (KYPC-4, Russian, 180 ch)+Open wire (3 channel) |
| Multiplex Equipment                                | K-60   | n.a.                | n.a.                | n.a.                | OB3-3   |
| Wired local loop (OSP)                             | n.a.   | n.a.                | n.a.                | n.a.                | n.a.  |
| Number of payphone                                 | 5  | n.a.                | n.a.                | n.a.                | n.a.  |
| No. of users per day at Service counter            | 48   | n.a.                | n.a.                | n.a.                | n.a.  |
| TV broadcasting                                    | MN.IKRAN Chinese                                 | ABER                | ABER IKRAN          | ABER IKRAN          | ABER  |
| No. of TV set                                      | n.a.   | n.a.                | n.a.                | n.a.                | n.a.  |
| FM Radio broadcasting                              | YES (105.5MHz)                                   | NO                  | NO                  | NO                  | NO  |
| Wired Radio broadcasting(no. of user)              | N.A.   | N.A.                | N.A.                | N.A.                | N.A.  |
| No. of CATV users                                  | 47   | NO                  | NO                  | NO                  | NO  |
| No. of Internet users                              | 11   | NO                  | NO                  | NO                  | NO  |
| No. of PC  | 300  | 3                   | 9                   | 4                   | 2   |
| No. of Mobile telephone users                      | N.A.   | N.A.                | N.A.                | N.A.                | N.A.  |
| Power Supply System                                | Commercial Power                                 | DEG+Solar Batt      | Commercial Power    | Commercial Power    | Commercial Power  |
| Emergency Power Supply (DEG or Batt.)              | DEG  | n.a.                | n.a.                | n.a.                | n.a.  |
| Power failure occurrence rate                      | 10-per year                                      | n.a.                | 1-2/year            | 2-3/year            | 2/year  |
| Number of staff of telephone office                | 103  | 2                   | 3                   | 2                   | 2   |
| Service hours/shift                                | 24 hours/4 shift                                 | 09-20/1             | 09-20/1             | 09-20/1             | 09-22/1 shift   |
| Failure rate per line                              | n.a.   | n.a.                | n.a.                | n.a.                | n.a.  |
| No. of Schools                                     | 5  | 1                   | 1                   | 1                   | 1   |
| No. of Hospitals/clinics                           | 1  | 1                   | 1                   | 1                   | 1   |
| Radio station installed (HF, VHF) provided by JICA | 8  | 6.                  | 9                   | 8                   | 7   |

### 3.3 Participants

JICA Study team : Mr. S. Uchiyama

Interpreter : Ms. Erdenechuluun

PTA Counterpart : Mr. S. Tugsbileg

Local consultants : AMAR Soft

### 3.4 Remarks :

#### Contact Persons

- a) Hentiy Aimag Governor : Mr. Erdenetbaatar
- b) Hentiy Aimag Telecom Office General Manager : Mr. Burneebaatar

#### NOTE:

##### Additional questions items :

- (1) Number of schools (primary, secondary, high school, university)
- (2) Number of hospitals/clinics (number of doctors, number of beds)
- (3) Number of Pay Phone, Number of Mobile telephone, Number of Fax, Number of Internet Users or Internet Service Provider
- (4) Calling Rate, traffic of subscriber lines and inter-exchange circuits
- (5) Number of PC (4) Number of TV/Radio set
- (6) Number of Installed Radio station (HF or VHF Transceiver) provided by Japanese government
- (7) Number of nomadic people
- (8) Monthly failure rate per telephone subscriber line, situation of operation of maintenance matters
- (9) VSAT /TV R.O. satellite transmission equipment installed or not, HF or VHF Radio transmission station installed or not
- (10) Situation of Microwave transmission system(manufacturer, type, transmission route, system configuration ,frequency band used and channel capacity), Open-wire system(transmission route, channel capacity), wired or wireless local loop(outside plant, wire-less local loop system), switching equipment(Manufacturer, Local Exchange, Toll Switch, Type and switching capacity), commercial power supply system (including Diesel Engine Generators, Solar Battery system)
- (11) Number of staff of telephone switching office
- (12) Existing Outside Plant System (subscriber telephone line route map)

**4 First Field Survey**  
**Umunu-Govi Aimag**  
 (April 22 through April 27, 2002)

**4.1 General Data Related to Telephone Services**

| Aimag/Sum    | Area size (Km2) | Popula-tion | No. of Telephone Line (telephone subscriber) | Local Call/Month |      | Long Distant Call/Mon. |       | International Call/Mon. |     | Mobile Telephone/Month |            | Wait-er | No. of house-hold | No. of bag |
|--------------|-----------------|-------------|--|------------------|------|------------------------|-------|-------------------------|-----|------------------------|------------|---------|-------------------|------------|
|              |                 |             |  | No.              | Min  | No.                    | Min   | No.                     | Min | No.                    | Min        |         |                   |            |
| Dalanzadgad  | 165000          | 13420       | 1611   | 2156             | 6469 | 12809                  | 44833 | 180                     | 541 | 5582/287               | 16745/8632 | 527     | 3257              | 54         |
| Tsogttsetsii | 7200            | 2189        | EXT :4<br>(Mag Tel)                          | 566              | 1672 | 289                    | 1023  | 0                       | 0   | 160/25                 | 506/77     | n.a     | 570               | 3          |
| Nomgon       | 19500           | 3100        | 10   | 512              | 1536 | 123                    | 368   | 0                       | 0   | 159                    | 477        | n.a     | 748               | 5          |
| Bayandalai   | 10700           | 2474        | EXT: 1                                       | 305              | 1401 | 63                     | 285   | 0                       | 0   | 21/2                   | 347/21     | 36      | 652               | 3          |

## 4.2 Telecommunication Facilities

|  |                              |                                   |                                      |  |
|--|------------------------------|-----------------------------------|--------------------------------------|--|
| Study items  | Dalanzadgad                  | Tsogttsetsii                      | Nomgon                               | Bayandalai                               |
| Name of Switching Equipment                        | EWSD                         | M-60 /C-12/48                     | Manual SWB                           | (PBX)                                    |
| Type(Digital/Analog)                               | Digital                      | A                                 | A                                    | A  |
| Manufacturer                                       | Siemence                     | Russia made                       | Russia made                          | (Montel)                                 |
| Year installed                                     | Dec. 2000                    | 1981                              | 1984                                 | (By year end)                            |
| Capacity   | 1864                         | 6                                 | 10                                   | (OFT12/EXT12)                            |
| Transmission system (VSAT/Micro/Open wire)         | VSAT (30CH)<br>A/Micro(30CH) | Open Wire                         | Open Wire ( φ 4mm,<br>Steel) TVRO x1 | Open Wire ( φ 4mm,<br>Steel)<br>TVRO x 3 |
| Study items  | Dalanzadgad                  | Tsogttsetsii                      | Nomgon                               | Bayandalai                               |
| Multiplex Equipment                                | PCM MUX                      | OB-12-3/OB-3-3                    | NO                                   | NO                                       |
| Wired local loop (OSP)                             | Cable +Aerial                | Aerial                            | Aerial                               | Aerial                                   |
| Number of payphone                                 | 8                            | NO                                | NO                                   | NO                                       |
| No. of users per day at Service counter            | n.a                          | n.a.                              | n.a.                                 | n.a.                                     |
| TV broadcasting                                    | MN,Russia,A                  | MN, Russia,<br>AVER10             | MN,Russia,<br>AVER10                 | MN, Russia,AVER10                        |
| No. of TV set                                      | n.a.                         | 75                                | 87                                   | 90 House(Sum)<br>102 House (Bag)         |
| FM Radio broadcasting                              | YES                          | YES                               | NO                                   | NO                                       |
| Wired Radio broadcasting(no. of user)              | Wired Radio station:15       | 90                                | 20                                   | 18                                       |
| No. of CATV users                                  | 500                          | NO                                | NO                                   | NO                                       |
| No. of Internet users                              | Internet café (2)            | NO                                | NO                                   | NO.                                      |
| No. of PC  | n.a.                         | 6                                 | 5                                    | 11                                       |
| No. of Mobile telephone users                      | NO                           | NO                                | NO                                   | NO                                       |
| Power Supply System                                | Commercial Power             | DEG(8KW)                          | DEG(ODA)<br>18:30-23:30              | DEG(ODA)<br>8PM to 12PM                  |
| Emergency Power Supply (DEG or Batt)               | DEG(16KW;30 KW)              | SOLAR+ Batt.                      | Batt                                 | Batt                                     |
| Power failure occurrence rate                      | 4 times/month                | No Com. Power (Limited Operation) | No Com Power                         | No Com. Power                            |
| Number of staff of telephone office                | 67 (SVC14+ ENG53)            | 5                                 | 2                                    | 2  |
| Service hours/shift                                | 24hours/4 shift              | 24hours/4 shift                   | 9:00-18:00                           | 9:00-18:00                               |
| Failure rate per line                              | n.a.                         | 10%                               | 5%                                   | 8%                                       |
| Study Items  | Dalanzadgad                  | Tsogttsetsii                      | Nomgon                               | Bayandalai                               |
| No. of Schools                                     | 4                            | 1                                 | 1                                    | 1  |
| No. of Hospitals/clinics                           | 3                            | 1                                 | 1                                    | 1  |
| Radio station installed (HF, VHF) provided by JICA | 92 (78+14)                   | 6                                 | 8                                    | 6  |

### 4.3 Participants

JICA study team : Mr. H. Ishigaki

Interpreter : Mr. Khuagua

PTA Counter : Mr. Uskhbayar

Local Consultants : Ms. Myagumalcelen (AMAR Soft)

### 4.4 Contact persons

General Manager of Umnugovi Telecom Office : Mr. TSOODOL

Governer Umnugobi Aimag : Mr. Sugir SUMIYA

### NOTE:

#### Additional questions items :

- (1) Number of schools (primary, secondary, high school, university)
- (2) Number of hospitals/clinics (number of doctors, number of beds)
- (3) Number of Pay Phone, Number of Mobile telephone, Number of Fax, Number of Internet Users or Internet Service Provider
- (4) Calling Rate, traffic of subscriber lines and inter-exchange circuits
- (5) Number of PC (4) Number of TV/Radio set
- (6) Number of Installed Radio station (HF or VHF Transceiver) provided by Japanese government
- (7) Number of nomadic people
- (8) Monthly failure rate per telephone subscriber line, situation of operation of maintenance matters
- (9) VSAT /TV R.O. satellite transmission equipment installed or not, HF or VHF Radio transmission station installed or not
- (10) Situation of Microwave transmission system(manufacturer, type, transmission route, system configuration ,frequency band used and channel capacity), Open-wire system(transmission route, channel capacity), wired or wireless local loop(outside plant, wire-less local loop system), switching equipment(Manufacturer, Local Exchange, Toll Switch, Type and switching capacity), commercial power supply system (including Diesel Engine Generators, Solar Battery system)
- (11) Number of staff of telephone switching office
- (12) Existing outside plant system (subscriber telephone line route map)



**5 First Field Survey**  
**Govi-altay Aimag**  
 (May 11 through May16, 2002)

**5.1 General Data Related to Telephone Services**

| Aimags/Sums | Area size (Km <sup>2</sup> ) | Population | No. of Telephone Line (telephone subscriber) | Local Call/Month |      | Long Distant Call/Mon. |       | International Call/Mon. |     | Mobile Telephone/ |       | Waiting List | No. of household | No. of bag |
|-------------|------------------------------|------------|--|------------------|------|------------------------|-------|-------------------------|-----|-------------------|-------|--------------|------------------|------------|
|             |                              |            |  | No.              | Min  | No.                    | Min   | No.                     | Min | No.               | Min   |              |                  |            |
| Altay       | 260156                       | 17761      | 1284   | 3227             | 6351 | 11293                  | 33351 | 66                      | 309 | 8025              | 25412 | 481          | 3974             | 4          |
| (Esunbolak) |                              |            |  |                  |      |                        |       |                         |     |                   |       |              |                  |            |
| Sharga      | 579.3<br>x1000 (ha)          | 2651       | 16   | 171              | 750  | 19                     | 94    | 0                       | 0   | 29                | 146   | 25           | 647              | 4          |
| Haliun      | 506.7<br>x1000 (ha)          | 3770       | 24   | 279              | 1210 | 14                     | 34    | 0                       | 0   | 63                | 301   | 10           | 841              | 4          |
| Biger       | 382.6<br>x1000 (ha)          | 2849       | 85   | 478              | 1921 | 232                    | 1002  | 0                       | 0   | 225               | 903   | 10           | 666              | 5          |

## 5.2 Telecommunication Facilities

|  |  |                                 |                                 |                                   |
|--|--|---------------------------------|---------------------------------|-----------------------------------|
| Study items  | Altay                                    | Sharga                          | Haliuon                         | Biger                             |
| Name of Switching Equipment                        | EWSA                                     | HJD-38                          | EM-48                           | MC-100                            |
| Type (Digital/Analog)                              | Digital                                  | Digital                         | Digital                         | Digital                           |
| Study items  | Altay                                    | Sharga                          | Haliuon                         | Biger                             |
| Manufacturer                                       | Siemence                                 | Mongolia made                   | Mongolia made                   | Mongolia made                     |
| Year installed                                     | 2001                                     | 1992                            | 1991                            | 2000                              |
| Capacity   | 1720 ch                                  | 38 ch                           | 48 ch                           | 100 ch                            |
| Transmission system (VSAT/Micro/Open wire)         | VSAT+ Analogue/Micro (KURS-4)+ Open wire | Openwire (1ch) VHF(450MHz, 1CH) | Openwire (1ch) VHF(450MHz, 1ch) | Openwire( Steel x1ch, Bronzex1ch) |
| Multiplex Equipment                                | DS MUX K-60 OB.12.3 OB.3.3               | EX-7100                         | EX-7100                         | OB3.3 OB12.3 (1989)               |
| Wired local loop (OSP)                             | Aerial +Duct                             | Aerial(20P)                     | Aerial(24P)                     | Aerial                            |
| Number of payphone                                 | 0  | 0                               | 0                               | 0                                 |
| No. of users per day at Service counter            | n.a.                                     | 15 ~ 16 people/day              | n.a.                            | n.a.                              |
| TV broadcasting                                    | YES(Mongol, Russia)                      | YES(Mongol, Russia)             | YES(Mongol, Russia)             | YES(Mongol, Russia)               |
| No. of TV set                                      | 3000                                     | 200                             | 120                             | 90                                |
| FM Radio broadcasting                              | YES                                      | NO                              | NO                              | NO                                |
| Wired Radio broadcasting(no. of user)              | YES                                      | YES                             | YES                             | YES                               |
| No. of CATV users                                  | YES(200)                                 | NO                              | NO                              | NO                                |
| No. of Internet users                              | 2 (Dial up)                              | NO                              | NO                              | NO                                |
| No. of PC  | 3  | 9                               | 6                               | 4                                 |
| No. of Mobile telephone users                      | Mobicom planning                         | NO                              | NO                              | NO                                |
| Power Supply System                                | Central Grid                             | DEG                             | DEG                             | DEG                               |
| Emergency Power Supply (DEG or Batt)               | DEG(30 KWx1)                             | Battery                         | Battery                         | Battery                           |
| Power failure occurrence rate                      | 25.7%                                    | n.a.                            | n.a.                            | n.a.                              |
| Number of staff of telephone office                | 105                                      | 1                               | 2                               | 5                                 |
| Service hours/shift                                | 24 Hour/4 shift                          | 09:00-18:00                     | 09:00-23:00/2 shift             | 24 hours/4 shift                  |
| Failure rate per line                              | 2 occurrence/Month                       | n.a.                            | n.a.                            | 3 to 4 occurrence/month           |
| No. of Schools                                     | 5  | 1(8 Years)                      | 1(8 Years)                      | 1(10 Years)                       |
| No. of Hospitals/clinics                           | 3  | 1(15 Beds)                      | 1(18 Beds)                      | 1(15 Beds)                        |
| Radio station installed (HF, VHF) provided by JICA | 5  | 7                               | 8                               | 8                                 |

### **5.3 Participants**

JICA Study Team : Mr. H.. Ishigaki, Mr. T. Kasai

Interpreter : Ms. S. Abiko

PTA Counterpart :Mr.Zolbayar

Local Consultants :Ms.Myagmalsulen (AMAR Soft)

### **NOTE**

Additional questions items :

- (1) Number of schools (primary, secondary, high school, university)
- (2) Number of hospitals/clinics (number of doctors, number of beds)
- (3) Number of Pay Phone, Number of Mobile telephone, Number of Fax, Number of Internet Users or Internet Service Provider
- (4) Calling Rate, traffic of subscriber lines and inter-exchange circuits
- (5) Number of PC (4) Number of TV/Radio set
- (6) Number of Installed Radio station (HF or VHF Transceiver) provided by Japanese government
- (7) Number of nomadic people
- (8) Monthly failure rate per telephone subscriber line, situation of operation of maintenance matters
- (9) VSAT /TV R.O. satellite transmission equipment installed or not, HF or VHF Radio transmission station installed or not
- (10) Situation of Microwave transmission system(manufacturer, type, transmission route, system configuration ,frequency band used and channel capacity), Open-wire system(transmission route, channel capacity), wired or wireless local loop(outside plant, wire-less local loop system), switching equipment(Manufacturer, Local Exchange, Toll Switch, Type and switching capacity), commercial power supply system (including Diesel Engine Generators, Solar Battery system)
- (11) Number of staff of telephone switching office
- (12) Existing outside plant system (subscriber telephone line route map)
- (13) Study about improvement of transmission line from Aimag center to Soum in Govi-Altay

## 6 Second Field Survey

### Uvurkhangai

(September 16 through September 20, 2002)

#### 6.1 General Data Related to Telephone Services

| Aimag/Sum       | Area size (Km2) | Population | No. of Telephone Line (telephone subscriber) | Long Distant Call/Mon. | Waiting-List | No. of household | No. of bag (with/without telephone) |   |
|-----------------|-----------------|------------|--|------------------------|--------------|------------------|-------------------------------------|---|
|                 |                 |            |  | No.                    | Min          |                  |                                     |   |
| Arvaiheer       | 51              | 20669      | 1644   |                        |              |                  |                                     |   |
| Uyanga          | 313900 ha       | 7600       | 133  |                        | 1600         |                  |                                     | 7 |
| Zuunbayan-Ulaan | 2494            | 5105       | 38   |                        | 2000         |                  |                                     | 6 |
| Bat Ulzy        | 269.4           | 5750       | 20   | 677                    | 2032         | 30               | 1830                                | 4 |
| Guching-Uls     | 4764            | 2213       | 57   | 600                    | 1160         | 20               | 121                                 | 4 |
| Hujirt          | 171782 ha       | 8000       | 218  |                        |              |                  | 4600                                | 3 |
| Sant            | 258440 ha       | 4200       | 5  | 560                    | 2367         | 35               | 1200                                | 5 |
| Bayangol        | 354800 ha       | 4250       | 38   | 529                    | 1325         | 64               | 1470                                | 6 |
| Toglog          | 546600 ha       | 2899       | 21   | 983                    | 2780         | 8                | 168                                 | 5 |
| Kharakhorin     | 252             | 8689       | 766  | 5208                   | 14264        | 1                |                                     | 5 |

6.2 Telecommunication Facilities

|  |                                |                           |                      |                      |  |                      |                      |                                 |
|--|--------------------------------|---------------------------|----------------------|----------------------|--|----------------------|----------------------|---------------------------------|
| Study items  | Arvaiheer                      | Uyanga                    | Zuunbayan Ulaan      | Bat Ulzy             | Hujirt                                   | Sant                 | Bayangol             | Khara-khorin                    |
| Name of Switching Equipment                        | EWSD                           | ATCK 50/200               | ATCK 50/200          | ATCK 50/200          | Panasonic                                | ATCK50/200           | MONEL C-12/48        | ATCK 100/2000                   |
| Type(Digital/Analog)                               | Digital                        | Analogue                  | Analogue             | Analogue             | Digital                                  | Analogue             | PCM Digital          | Analogue                        |
| Manufacturer                                       | Siemence                       | Russia                    | Russia               | Russia               | Japan                                    | Russia               | Mongolia             | Russia                          |
| Capacity   |                                | 50                        | 50                   | 50                   | 240                                      | 50                   | 48                   | 100                             |
| Transmission system (VSAT/Micro/Open wire)         | Digital MW (34 Mbps)           | OB-3-3(3 ch)              | OB-3-3 (1 ch)        | OB-3-3(1 ch)         | PCM 50 P (TPP 50x2x0.5 m/m)              | OB 12-3 (4 ch)       | OB 3-3 (1 ch)        | NEC DRM770 (2 Mbps x 4) (30 ch) |
| Power Supply System                                | Central Grid/DEG /Battery      | Central Grid/Battery      | Central Grid/Battery | Central Grid/Battery | Central Grid/DEG 24KVAX1 (1969) /Battery | Central Grid/Battery | Central Grid/Battery | Central Grid/DEG 16 KVA/Battery |
| Number of staff of telephone office                |                                | 2                         | 2                    | 2                    | 11                                       |                      |                      | 24                              |
| Radio station installed provided by JICA           |                                | 9                         | 9                    | 7                    | 6  |                      | 8                    | 8                               |
| Study items  | GuchingUs                      | Tugrug                    |                      |                      |  |                      |                      |                                 |
| Name of Switching Equipment                        | Panasonic D500                 | MONEL                     |                      |                      |  |                      |                      |                                 |
| Type(Digital/Analog)                               | Digital Super Hybrid System    | PCM Digital               |                      |                      |  |                      |                      |                                 |
| Manufacturer                                       | Japan                          | Mongolia                  |                      |                      |  |                      |                      |                                 |
| Year installed                                     | 2001                           |                           |                      |                      |  |                      |                      |                                 |
| Capacity   | 100                            |                           |                      |                      |  |                      |                      |                                 |
| Transmission system (VSAT/Micro/Open wire)         | OB-3-3(1 ch)                   | OB-3-3(1 ch)              |                      |                      |  |                      |                      |                                 |
| Power Supply System                                | DEG (60 KVA x 3) /SolarBattery | Central Grid/SolarBattery |                      |                      |  |                      |                      |                                 |
| Number of staff of telephone office                | 2                              | 2                         |                      |                      |  |                      |                      |                                 |
| Radio station installed (HF, VHF) provided by JICA | 6                              | 7                         |                      |                      |  |                      |                      |                                 |

**6.3 Contact Person:**

General Manager of Arvaiheer : Yadamjav, Chief Engineer : Dorjpalam  
 General Manager of Uyanga  
 General Manager of Zuunbayan-Ulaan : O. Tserennasan (26503)  
 General Manager of Bat Ulzy:  
 General Manager of Hujirt : D.Jargal (26507)  
 General Manager of Sant  
 General Manager of Bayangol : D.Bilegjargal  
 General Manager of Toglog : Ts Jansan (26505)  
 General Manager of Kharakhorin : D. Oyungerel (0132582786)

**6.4 Location**

| Sum Center      | Longitude   | Latitude   | Altitude |
|-----------------|-------------|------------|----------|
| Arvayheer       | 102°46'539" | 46°15'943" | 1845m    |
| Uyanga          | 102°16'809" | 46°27'644" | 1991m    |
| Zuunbayan Ulaan | 102°35'645" | 46°31'345" | 1870m    |
| Sant            | 105°50'448" | 46°05'499" | 1500m    |
| Bayangol        | 108°25'952" | 45°49'660" | 1449m    |
| Togrog          | 102°59'652" | 45°92'054" | 1397m    |
| Guching-Us      | 102°25'196" | 45°27'785" | 1466m    |
| Bat Ulgi        | 102°14'713" | 46°48'378" | 1673m    |
| Hojirt          | 102°46'913" | 46°59'733" | 1660m    |
| Kharahorin      | 102°48'307" | 47°11'530" | 1474m    |

**7 Second Field Survey**

**Darkhan-Uul**

(September 21 through September 23, 2002)

**7.1 General Data Related to Telephone Services**

| Aimags/Sum | Area size (Km <sup>2</sup> ) | Population | No. of Telephone Line (telephone subscriber) | Local Call/Month |         | Long Distant Call/Mon. |       | International Call/Mon. |      | Mobile Telephone/Month |       | Wait-er |
|------------|------------------------------|------------|--|------------------|---------|------------------------|-------|-------------------------|------|------------------------|-------|---------|
|            |                              |            |  | No.              | Min     | No.                    | Min   | No.                     | Min  | No.                    | Min   |         |
| Darkhan    |                              | 85660      | 5437   |                  | 1167278 |                        | 41253 |                         | 3138 |                        | 59734 | 664     |
| Sharin Gol | 160                          | 8619       | 398  |                  |         |                        | 6213  |                         | 1081 |                        | 8700  | 187     |
| Khongol    | 254                          | 5543       | 70   |                  |         |                        | 1260  |                         | 11   |                        | 7390  |         |
| Orkhon     | 43                           | 3400       | 28   |                  |         |                        | 1222  |                         | 16   |                        | 946   | 9       |

Mongol Telecom Office in Salkhit was made withdrawal and only MRC telecom office.

**7.2 Points related to telecommunication facilities**

| Study items  | Darkhan           | Sharin Gol |
|--|-------------------|------------|
| Name of Switching Equipment                        | EWSD              | ATCK       |
| Type(Digital/Analog)                               | Digital           | Analogue   |
| Manufacturer                                       | Germany           | Russia     |
| Year installed                                     | 1997              | 1998       |
| Capacity   | 6384              | 500        |
| Transmission system (VSAT/Micro/Open wire)         | Digital Microwave | Open Wire  |
| Multiplex Equipment                                | NERA              | OB-12-3    |
| Number of payphone                                 | 42                | 1          |
| FM Radio broadcasting                              | -                 | 1          |
| Wired Radio broadcasting(no. of user)              | 5006              | 5-         |
| No. of Mobile telephone users                      | 6993              | -          |
| Number of staff of telephone office                | 11                | 4          |
| Service hours/shift                                | 24                | 24         |
| No. of Schools                                     | 23                | 1          |
| No. of Hospitals/clinics                           | 26                | 1          |
| Radio station installed (HF, VHF) provided by JICA | 36                |            |

*Remarks*

1. Contact Person : General Manager of Darkhan : Ms. B. Battsetseg (Chief Engineer: 137227020)

**7.3 Location**

| Aimag/Sum Center | Longitude   | Latitude   | Altitude |
|------------------|-------------|------------|----------|
| Darkhan          |             |            | 750 m    |
| Sharin-Gol       | 106°25'288" | 49°14'772" | 916 m    |

**8 Second Field Survey**

**Selenge**

(September 23 through September 27, 2002)



8.1 General Data Related to Telephone Services

| Aimags/Sum  | Area size (Km <sup>2</sup> ) | Population | No. of Telephone Line (telephone subscriber) | Local Call /Month |       | Long Distant Call /Mon. |       | International Call /Mon. |     | Mobile Telephone /Month |       | Waiting List | SC No. of household | No. of bag |
|-------------|------------------------------|------------|--|-------------------|-------|-------------------------|-------|--------------------------|-----|-------------------------|-------|--------------|---------------------|------------|
|             |                              |            |  | No.               | Min   | No.                     | Min   | No.                      | Min | No.                     | Min   |              |                     |            |
| Sukhbaatar  | 45350                        | 20591      | 1380   | 44504             | 79819 | 17574                   | 46001 | 233                      | 806 | 22922                   | 51207 | 187          | 3532                |            |
| Zuunburan   | 120.5                        | 2245       | 13   | -                 | -     | 460                     | 1389  | -                        | -   | 267                     | 633   | 2            |                     |            |
| Artanbulag  | 210                          | 3812       | 88   | -                 | -     | 1596                    | 2791  | 37                       | 126 | 582                     | 1137  | 25           |                     |            |
| Eruu        | 820.3                        | 6002       | 70   | -                 | -     | 909                     | 2726  | 4                        | 29  | 152                     | 457   | 10           |                     |            |
| Tsaganuux   | 588.4                        | 4326       | 45   | -                 | -     | 676                     | 2349  | -                        | -   | 710                     | 1950  | 20           | 800                 |            |
| Khutul      | 13200                        | 8700       | 536  |                   |       | 2453                    | 6048  |                          |     |                         |       | 110          | 1531                | 3          |
| Sart        | 138706 ha                    | 2100       | 33   |                   |       | 564                     | 1665  |                          |     |                         |       | 80           | 500                 |            |
| Baruurburen | 281450                       | 2953       | 49   |                   |       | 445                     | 1481  |                          |     |                         |       |              | 673                 | 2          |
| Orkhon-tuur | 249000 ha                    | 4002       | 42   |                   |       | 433                     | 1487  |                          |     |                         |       |              | 872                 | 1          |
| Zuunhara    | 460                          | 22738      | 707  |                   |       |                         |       |                          |     |                         |       | 150          | 5183                | 4          |

**8.2 Name of Contact Person :**

General Manager of Sukhbaatar : Tsend-Ayuush

General Manager of Zuunburan : Gereltuya

General Manager of Artanbulag : Tsogzolmaa

General Manager of Eruu : Altantsetseg

General Manager of Tsaganuur : Dovaadorj

General Manager of Khutul:Ms. B.Damdinbazar

General Manager of Zuunhara : Ts. Erdenechuluun (Chief Engineer,  
26541/99281535)

**8.3 Location**

| Sum Center  | Longitude   | Latitude   | Altitude |
|-------------|-------------|------------|----------|
| Sukhbaatar  | 106°29'687" | 50°19'72"  | 682 m    |
| Shaamar     | 106°11'231" | 50°4'930"  | 634 m    |
| Zuunburan   | 105°59'28"  | 50°4'89"   | 618 m    |
| Hudur       | 105°33'291" | 49°5'698"  | 872 m    |
| Sant        | 105°22'442" | 49°14'775" | 735 m    |
| Baruunburen | 104°49'526" | 49°10'254" | 896 m    |
| Orxon-Tuul  | 104°49'526" | 49°10'254" | 763 m    |
| Zuunharaa   | 106°27'564" | 48°51'161" | 852 m    |



**2. LAW ON COMMUNICATIONS (RENEWED VERSION  
2001)**

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## 2. The Law on Communications (Renewed version)

Approved \_\_\_\_\_ 2001

Ulaanbaatar City

### Chapter One General Provisions

#### Article 1. Purpose of this Law

1.1 The purpose of this Law is to regulate relations between State, citizen and legal persons engaged in the creation, utilization and protection of communications network in Mongolia.

#### Article 2. Legislation on communications

2.1 The legislation on communications is comprised of the Constitution of Mongolia, this law and other acts of legislations consistent with those laws.

2.2 If an international treaty to which Mongolia is a party is inconsistent with this law, then the provisions of the international treaty shall prevail.

#### Article 3. Definitions in this Law

3.1 In this law the below mentioned terms shall have the following meanings:

3.1.1 "Line" means any conductors (such as wire, capacity) used for broadcasting, transmitting and receiving information and complex of insulators, ducts, poles, towers and other materials used for their protection.

3.1.2 "Network" means a set of lines used for broadcasting, transmitting and receiving information between two or more users, furthermore a device system for receiving, sorting, transporting and delivering mail.

3.1.3 "Operation" means the repair, maintenance, testing and adjustment of communications network for its sustainable functioning,

3.1.4 "Service" means a delivery of service providing satisfaction of communications and information demands of customers through communications network.

3.1.5 "Provider" means a legal person or citizen holding license for communications universal service.

3.1.6 "Customer" means a citizen or legal person having the right to purchase service in the contract of communications service.

3.1.7 "Demarcation point" means an interconnection point of lines and networks between operators, and operator and customer.

- 3.1.8 “Postal items” means letters, parcels and other items stamped by a post office and sent through the postal system.
- 3.1.9 “Postal address” means information on a customer (individual, business entity and organization) including place of residence (names of aimag, capital city, sum, duureg, bag, horoo, town, village, street and square, number of building, apartment, hashaa (fence door No.)) and the operator number.
- 3.1.10 “Postal securities” means postage stamps, envelopes and postcards with postage stamps.
- 3.1.11 “Universal service obligations” means in the frame work of state policy, a delivery of telecommunications’ essential service to population of remote areas and areas without service access, at real cost.
- 3.1.12 Universal service obligations fund means assets accumulated for implementation of Universal service obligation.
- 3.1.13 “Communications” means all types of technology for telecommunications, radio and television broadcasting, postal service and information as well.
- 3.1.14 “Telecommunications service” means transmission of all kinds of information through telecommunication network.
- 3.1.15 “Integrated numbering plan” means numerical meanings of codes for identifying international, domestic of local networks and subscribers as well as calling directions.

## **Chapter Two Powers of State Bodies in relations to Communications**

### **Article 4. Powers of State Ih Hural**

- 4.1 The State Ih Hural shall elaborate the State policy on communications.

### **Article 5. Powers of Government**

- 5.1 The Government shall exercise the following full powers on communications:

- 5.1.1 implement the State policy on communications, organize applications of the legislation on communications;
- 5.1.2 set up Communications Regulatory Committee and ratify its Charter.
- 5.1.3 establish Universal Service Obligations Fund and approve procedure of its disbursement.

### **Article 6. Powers of the Cabinet Member with portfolio communications**

- 6.1 The Minister for communications shall exercise the following powers:

- 6.1.1 to implement legislation and decisions of the Government on communications;
  - 6.1.2 to elaborate policy on Communications
  - 6.1.3 to formulate policy on creation of competition in communications market;
  - 6.1.4 to approve procedures on establishment of costs for regulatory service to license holders;
  - 6.1.5 to approve the integrated numbering plan
  - 6.1.6 to elaborate policy on universal service obligations, monitor its implementation.
  - 6.1.7 To develop policy on the production of postal securities and establishment of the Saate fund, and monitor;
  - 6.1.8 To ensure reliability, immediate-responding and quality of communications service and monitor security protection of communications and correspondences privacy;
  - 6.1.9 To formulate policy on professional manpower development in communications sector;
  - 6.1.10 other powers stipulated in the Legislation.
- 6.2 The member of the Cabinet with portfolio for communications shall express his consent and agree on designated candidates for top management of fully and partially state owned enterprises of communications with authorized body.

**Article 7. Powers of Governors at all territorial levels**

- 7.1 Governors at each territorial level shall exercise the following powers on communications:
- 7.1.1 To undertake measures to improve communications service on their territories in collaboration with relevant authorities;
  - 7.1.2 To approve and monitor schedules of mail delivery in their territories;
  - 7.1.3 To undertake measures for allocation of identifiable addresses in each street, square, building, apartment and fence in the capital city, every aimag, sum, duureg and khoroo in their territories;
  - 7.1.4 To organize rehabilitation works of damages and deficiencies in communications network due to emergence case of natural disaster and other catastrophes;
  - 7.1.5 To support and assist initiatives to establish and utilize radio, television and other communications networks;
  - 7.1.6 Other powers stipulated in the Legislation.



**Article 8. Regulatory Committee for Communications Affairs**

- 8.1 The Regulatory Committee for Communications Affairs (hereinafter named as “Regulatory Committee”) shall work with functions to develop effective and fair competition environment for market participants such as business entity of all type property, citizen; issue licenses, work out professional conclusions and decisions.
- 8.2 The Regulatory Committee shall consist of the Chairman and non-executive 6 Members.
- 8.3 The Prime Minister shall nominate the Chairman and Members on the basis of proposal by the Cabinet Member with portfolio for communications.
- 8.4 A legitimate term in office for both the Chairman and Members shall be 6 years. Terms of the first nomination of Members of Regulatory Committee shall be 2.4.6 years, and further they shall be nominated for a 6 year term.
- 8.5 The Chairman of Regulatory Committee can be re-nominated for one more term.
- 8.6 Persons to be nominated as the Chairman and the Members of Regulatory Committee shall be citizens of Mongolia, who have worked by their profession minimum 5 years and met the following requirements:
- 8.6.1 having university degree in legal, economics, information-communications, management or technical field; highly qualified and experienced, skillful organizer.
- 8.6.2 The Chairman and Members of the Regulatory Committee shall not be persons who possesses 20 or more than 20 per cent of the common stock of the provider or persons with common interests with the late.
- 8.7 The Chairman and Members of the Committee shall have rights of State Inspectors.
- 8.8 The Regulatory Committee shall have working staff.
- 8.9 The Regulatory Committee shall have local sub-councils comprised of non-executive members.
- 8.10 The Regulatory Committee shall be financed by payment revenues derived from its regulatory services to licensee and radio frequency spectrum usage.
- 8.11 The Government shall ratify the annual budget of Regulatory Committee. The Regulatory Committee shall annually report to the Government on its budget performance and activities.
- 8.12 The Regulatory Committee shall have its financial report audited and published annually.

**Article 9. Powers of Regulatory Committee**

- 9.1 The Regulatory Committee shall exercise the following powers:

- 9.1.1 To furnish authorized organizations with information and develop proposals on the State policy on communications;
- 9.1.2 To grant, suspend and revoke licenses, monitor applications of license conditions and requirements, establish contracts within the framework of policies on communications;
- 9.1.3 To determine technical conditions and requirements for equipment of communications network and customers, and certify them;
- 9.1.4 To approve general terms of interconnection agreements between networks and procedures of revenue distribution;
- 9.1.5 To approve accounting methodologies for service tariffs, monitor service tariffs dominating a market;
- 9.1.6 To create conditions for fair competition in communication sector;
- 9.1.7 To ensure implementation of universal service obligations;
- 9.1.8 to work out communications standards, have them duly approved by relevant authorities, and monitor their application;
- 9.1.9 to elaborate an integrated numbering plan of networks and implement it;
- 9.1.10 to make radio frequency allocations and conduct monitoring;
- 9.1.11 to determine regulatory service fees stipulated in 6.1.4\_ of this Law.
- 9.1.12 to settle various disputes between license holder and customers within its specified powers.
- 9.1.13 Other powers stipulated in the Legislation.

**Article 10. The Post Telecommunications Authority**

- 10.1 The Post Telecommunications Authority shall be a possessor of State owned telecommunications backbone network which consists of international and domestic long distance transmission and international long distance switching facilities, and shall have the following rights and duties:
  - 10.1.1 to plan and implement technical, technological and organizational actions, and conduct research and study works in order to implement the government policy towards stable operations and development of the State owned backbone network.
  - 10.1.2 to implement projects, conduct related accounting, evaluation, analyses works and appraisal in accordance with the strategy-plan for expansion of the State owned backbone network.

- 10.1.3 to organize investment into the State owned backbone network and conclude network operation contracts with providers;
- 10.1.4 to accumulate assets at the Universal Service Obligations Fund and disburse in consistence with its purpose, report to the Cabinet Member on the status of performance;
- 10.1.5 to render professional and methodological assistance to local authorities and relevant bodies pursuant to implementation of the State policy;
- 10.1.6 to develop the State owned backbone network and to furnish the State administrative central body with relevant information.

### **Chapter Three Universal Service Obligations Fund**

#### **Article 11. Universal Service Obligations Fund**

- 11.1 The Universal Service Obligations Fund shall be accumulate and disbursed with purpose of construction of new networks, expansion and renovation of existing network, providing necessary telecommunications service to remote areas and populations without access.
- 11.2 The Universal Service Obligations Found shall be formed from the following sources:
  - 11.2.1 donation, loan and aid grants;
  - 11.2.2 other.
- 11.3 The Fund shall be disbursed only for purposes stipulate in article 11.1. of this Law.

### **Chapter Four License**

#### **Article 12. License**

- 12.1 The Regulatory Committee shall grant a license to a legal person and citizen planning to conduct the following activities on the territory of Mongolia:
  - 12.1.1 To run Public Communications service;
  - 12.1.2 To use radio frequency and spectrum;
  - 12.1.3 To print postal securities;
- 12.2 A term of licenses shall not exceed 20 years.
- 12.3 The Regulatory Committee shall register communications service, operation and manufacturing by citizens or legal persons except the mentioned in the 12.1.

#### **Article 13. Documents for applications for license**

- 13.1 The citizen and legal person applying for license shall forward to the Regulatory Committee its application with documents spelled out in the law.
- 13.2 The application for license shall enclose documents stipulated in the legislation, and additionally shall enclose the following documents:
  - 13.2.1 Accounting and information on the applicant's capability in finance, economic and technical resources as well as in professional capacity;
  - 13.2.2 Information on its activities. (Coverage of its service, location, technology and tariff offer.)

**Article 14. Issuance of license and refusal of license application**

- 14.1 If the Regulatory Committee grants the license, thin it shall conclude contract with the licensee. The Contract includes:
  - 14.1.1 specific region to be covered and service access;
  - 14.1.2 technological specifications of communications lines, network and equipment;
  - 14.1.3 prevention measures and obligations in case of emergency circumstances of war and natural calamities;
  - 14.1.4 preconditions for the interconnection;
  - 14.1.5 rights and duties of the Regulatory Committee and the licensee.
  - 14.1.6 Other.
- 14.2 The license applied for shall be refused by the Regulatory Committee if:
  - 14.2.1 There is nor radio frequency bandwidth which the applicant requested for;
  - 14.2.2 The applicant has not been furnished with financial-economical, technical and professional capacity required to set up and operate communications network;
  - 14.2.3 public safety or interest and national securities aspects would be prejudiced as a result of license being granted.
- 14.3 If several applications are submitted for a license for one area then there shall be selection tendering.

**Article 15. Revocation of License**

- 15.1 Apart from those provisions specified in the law on Business Activities Licensing, the Regulatory Committee shall be entitled to revoke licenses if:
  - 15.1.1 The Licensee fails to comply with its obligations under the Communications laws and contract.

- 15.1.2 The Licensee discloses privacy of communications and correspondences relations;
- 15.1.3 The Licensee has not started its business specified in the license for 1 year since its issuance.
- 15.1.4 The Licensee conducts illegal activities not specified in the Law and contract.
- 15.2 The Regulatory Committee shall not be liable for any claim for damages derived from the revocation of license under the provision of Article 15.1;
- 15.3 If there is disagreement in connection to revocation and suspension of license, any claim shall be submitted to the Court.

## **Chapter Five    Communications Network**

### **Article 16.    Types of communications network**

- 16.1 Communications network shall consist of telecommunications, postal service, radio and television broadcasting and information / Internet, computer and other / networks.
- 16.2 Communications network shall be classified as public service and internal or special usage networks according to their purposes;

### **Article 17.    Telecommunications network**

- 17.1 Telecommunications network includes all lines, equipment and other facilities required for transmission or reception of signs, signals, sounds, images and other information between customers.
- 17.2 Backbone telecommunications network means public network which consists of international and domestic long distance transmission, and international long distance switching facilities. The Backbone network may belong to State property.
- 17.3 The possessor of telecommunications network shall organize a network through integrated technical and technological management, which operates without interruptions.
- 17.4 The backbone network may be constructed and possessed by all type property entity and individuals.

### **Article 18.    Postal service network**

- 18.1 Postal network consists of equipment and facilities for receiving, sorting, transporting and delivering postal items.
- 18.2 Postal activities shall be carried out by the legal subject possessing the License.
- 18.3 Postal exchanges and deliveries shall be determined in accordance with the following schedules and directions approved by authorities and public servants:

- 18.3.1 bilateral agreement on international postal exchange and delivery established between authorities of communications;
  - 18.3.2 for domestic postal deliveries between aimag, capital city and towns by decision of the Minister having portfolio for communications.
  - 18.3.3 for local delivery within capital city, duureg, aimag, sum, town and village by decision of the Governor at each territory.
- 18.4 The Postal service entity shall have the rights under license, through its network, to conduct service such as in banking remittance, money saving, insurance, mail ordering commerce and other financial services.

**Article 19. Radio and Television Broadcasting network**

- 19.1 Radio and Television broadcasting network comprise of all equipment and facilities required for transmission or reception of radio and television broadcasts.
- 19.2 The radio and television broadcasting network shall be used by the program producers of radio and television broadcasting on the basis of contract with the service-provider.

**Article 20. Communications network for special purpose**

- 20.1 For the purpose to ensure defense and security of Mongolia and to keep civil protection, criminal and social orders, state or local administrative bodies shall establish and operate *communications network for special purpose*.
- 20.2 The communications network for special purpose shall be under protection of the State.
- 20.3 The Government of Mongolia shall determine procedures in respect to installation and operation of communications network for special purpose.
- 20.4 The equipment and circuits of telecommunications required for communications network for special purpose shall be provided through contract concluded with the operator-service provider.
- 20.5 The organization for protection of the privacy of information of communications for special purpose during transmission through communications network shall be carried by the body specified in Article 20.1.

**Article 21. Communications network for internal purpose**

- 21.1 Any enterprise and business entity may establish and operate communications network for internal needs, which allows prompt coordination of its technological management.
- 21.2 Based on the license issued by the Regulatory Committee it shall be allowed to be interconnected to backbone telecommunications network and provide service.

**Article 22. Connections to communications network**

- 22.1 The possessor of network for special and internal purposes, and possessor of newly constructed network shall bear all responsibility in respect to additional lines and equipment required to demarcation points of interconnection with network possessed by other persons.
- 22.2 Within its technical possibility, the operator shall provide conditions for connections of other network to own network without any hindrance.
- 22.3 The demarcation point in interconnection between networks shall be determined by the Regulatory Committee.

**Article 23. Mobilization of communications network**

- 23.1 Pursuant to the event of imposition of war and martial law, or extreme natural emergency conditions in Mongolia, the communications network shall be mobilized in accordance with the legislation.

**Chapter Six Rights and Obligations of Service providers and customers**

**Article 24. Responsibilities of service provider**

- 24.1 The service providers and customers rights, obligations and responsibilities shall be regulated by agreement laid down in the Civil Law.

**Article 25. Providers rights and obligations**

- 25.1 The Provider shall enjoy the following rights:
  - 25.1.1 determine tariffs for communications service on the basis of methodology elaborated by the Regulatory Committee.
  - 25.1.2 cease provision of the service and terminate contract if the customer fails to fulfill contract obligations.
  - 25.1.3 Other rights fixed in the contact.
- 25.2 The service provider shall have the following obligations:
  - 25.2.1 To ensure to service customers without any discrimination in accordance with the special license;
  - 25.2.2 To be subject to provisions and rules of technical and technological requirements as well as standards of communications operations, service and expansion;
  - 25.2.3 To notify in advance both the Regulatory Committee and customers on any new replacement, expansion, modification of service and temporary interruption of communications equipment.
  - 25.2.4 To protect and keep privacy of all information and data transmitted through

communications network.

- 25.2.5 To allow usage of the network by others without any prevention in accordance with the legislation in the case of circumstances stipulated in Article 23.1 of this Law;
  - 25.2.6 Not to interrupt communications service except in those circumstances, fixed in the legislation, to bear all responsibility under the Civil Law if any occurred to customers.
  - 25.2.7 To give required information to the Regulatory Committee on specified time.
  - 25.2.8 Other obligations stipulate in the Contract and this Law.
- 25.3 The employee of service providing body shall have free access to maintain and repair its own communications lines, network housed in the premises of state-protected enterprises and organizations.
- 25.4 The postal service enterprise shall have right to provide service of postal items with unidentifiable address of destination and sender in accordance with regulation of International Postal Union and Mongolian National Postal Charter.

**Article 26. Rights and obligations of customers**

- 26.1 The customer shall have the following rights:
- 26.1.1 To select and use the certified equipment, which complies with standards and technical requirements of communications network;
  - 26.1.2 To demand the repair of deficiencies occurred in communications network on the time specified in contract and get information on it;
  - 26.1.3 To claim compensation under the Civil Law for any loss caused by interruption in communications service or shut down equipment, loss of or damage to postal items excluding results of natural calamities, emergency and expected accidents;
  - 26.1.4 Other rights stipulated in a Contract.
- 26.2 The customers shall undertake the following obligations:
- 26.2.1 To protect communications network and equipment housed in the customers' premises or region, and notify service providers on any damages or deficiencies occurred or to be occurred;
  - 26.2.2 to pay charges for communications service in time specified in a Contract;
  - 26.2.3 to use certified equipment compatible to requirements given by communications service providers;
  - 26.2.4 other obligations stipulated in a Contract.



**Chapter Seven Protection of Communications Network**

**Article 27. Common duties of business entity, organization and citizen**

- 27.1 The business entity, organization and citizen shall have the following duties in regard to the protection of communications network:
- 27.1.1 To obtain permission from the service provider for setting up links and networks, constructing facilities, surveying and mapping of engineering lines and network furthermore in the case of replacement, conduct such work at own expenses;
  - 27.1.2 To obtain identifiable address and code from post office and if any modification, and update on time;
  - 27.1.3 To refrain from posting any explosives (weapons, gunpowder, bullets, etc) or radioactive and flammable items (gasoline, fuel, spirits, acid, alkali, etc) and other items prohibited by the customs clearance;

**Article 28. Protection of rights of way**

- 28.1 "Protection of rights of way of communications" means an area of land and space designated for communications network assigned from the United Land Fund of Mongolia. The dimensions of protection rights of way shall be as follows:
- 28.1.1 an area 10 meters on either side of all open-air lines;
  - 28.1.2 an area 5 meters on either side of all cable lines;
  - 28.1.3 an area within 300 meters radius of a station established for transmission via microwave station or satellite;
  - 28.1.4 any area considered harmful to humans because of the capacity of radio and television transmitting equipment and radio frequency generators.
- 28.2 In accordance with their respective powers, the Central State administrative body and local government shall resolve all aspects in regard to the rights of way of communications network.

**Article 29. Control over protection of rights of ways**

- 29.1 The rights of ways of communications shall under control of service provider.
- 29.2 The signs indicating rights of ways of communications shall be erected along directions of the lines.
- 29.3 It shall be prohibited to carry out the following works on the rights of ways:
- 29.3.1 Construction of building, erection of ger and fence, and cultivation of trees;
  - 29.3.2 Disposal of any heavy items, leakage of chemical and caustic substances,

which may cause serious damages to cables;

- 29.3.3 To pass across and transportation with excessively tall load under open-air lines;
- 29.4 If the performer of order is entitled to carry out works on rights of ways of communications, then he / she shall obtain approval from service provider of such actions.
- 29.5 The performer of order on rights of ways of communications after completion of works on them shall take actions to restore and refurbish the site to its original state at own expenses.

### **Chapter Eight Control and Liabilities**

#### **Article 30. Control over communications operations, services and manufacturing**

- 30.1 The State Communications inspectors shall conduct control over and inspect compliance with the legislation, technical and technological standards in process of communications operations, services and manufacturing.
- 30.2 The State Communications inspectors in addition to powers specified in the Law of State control and inspection shall have the following powers:
  - 30.2.1 To monitor adherence of the legislation of communications and radio frequency, and issuance of licenses, and control and inspect of performance;
  - 30.2.2 To inspect implementation and adherence of the relevant technological norms and rules, standards and technical requirements and other legal provisions governing communications operations, services and manufacturing;
  - 30.2.3 To terminate unlicensed communications operations, services and manufacturing and unregistered usage of radio frequency;

#### **Article 31. Settlement of Disputes**

- 31.1 The Regulatory Committee and its branch, representative offices shall be entitled within their competence to settle disputes among licensees, and licensee and customer.
- 31.2 If a licensee or customer are not agree to settle down disputes as mentioned in clause 1 of this article he / she shall have right to submit complaint to the Court.

#### **Article 32. Liability for breach of the Law**

- 32.1 If an infringement of the legislation is held, that it does not constitute a criminal offence, state inspectors on communications shall impose on the offending person the following administrative penalties:
  - 32.1.1 any person who causes damage to any communications equipment installed on common use territories shall be fined between 10,000-25,000 tugrugs, and a business entity or organization shall be fined between 100,000-250,000 tugrugs.

- 32.1.2 any person during survey and mapping activities of building and facilities, and engineering lines and network has cut and moved without prior permission communications lines, network housed on that site, and as result of such work made damage to lines, network (communications cables, open-air lines, subscriber cable box, built-in wires, transformer, ducts, post office box, etc.) and made out of order, shall be fined in the case of a citizen or official between 25,000—35,000 tugrugs, in the case of a business entity and organization shall be fined between 150,000-250,000 tugrugs.
- 32.1.3 any person who dismantles or defaces any sign erected along communications lines and network, or causes damage to communications poles, or leaves extraneous items in cable box, manholes, ducts or post office box shall be fined between 3,000 to 10,000 tugrugs, and in the case of a business entity and organization shall be fined between 30,000 to 150,000 tugrugs.
- 32.1.4 any person who has made without license an interconnection to communications network, using interconnection acquired transmitted information, and conducted communications operations and service, then such activities shall be terminated immediately, shall be fined between 10,000 to 35,000 tugrugs, and in the case of a business entity and organization shall be fined between 50,000 to 250,000 tugrugs.
- 32.1.5 any person who breaches Article 29.3 and 29.4 of this Law shall be fined between 5,000 to 35,000 tugrugs, and in the case of a business entity and organization shall be fined between 150,000 to 250,000 tugrugs.
- 32.1.6 any person who sends or receives by post prohibited items or sends postal items in excess of the number of items permitted, or fails to comply with the timetables for mail delivery or loses or causes damage to or unseals any postal item shall be fined between 5,000 to 35,000 tugrugs, and in the case of a business entity and organization shall be fined between 50,000 to 250,000 tugrugs.
- 32.1.7 any person who breaches Article 25.2.6 of this Law shall be fined between 5,000 to 35,000 tugrugs, and in the case of a business entity and organization shall be fined between 100,000 to 250,000 tugrugs.
- 32.1.8 any person who breaches Article 25.2.2 and 25.2.3 shall be fined between 15,000 to 25,000 tugrugs, and in the case of business entity and organization shall be fined between 100,000 to 200,000 tugrugs.

**Article 33. Compensation for loss**

- 33.1 Any person who suffers loss as a result of breach of the legislation communications may bring a claim for compensation against person whose breach caused such loss.

**SIGNATURE:**

**S. TUMUR-OCHIR  
THE CHAIRMAN OF THE IKH KHURAL  
MONGOLIA**

**3. MONGOLIAN TELECOMMUNICATIONS SECTOR  
POLICY STATEMENT (DEC. 28, 2001: NO. 372)**

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### **3. Mongolian Telecommunications Sector Policy Statement**

**Translation of Draft**

**Order of the Minister for Infrastructure of Mongolia**

**Date: December 28, 2001, No. 372**

#### **MONGOLIAN TELECOMMUNICATIONS SECTOR POLICY STATEMENT**

##### **I General Background**

This documents a policy to be maintained in telecommunications sector's activities within the framework of the state policy on communications sector.

This policy statement is targeted to implement the liberalization of communication sector as well as the principle of non-discrimination in the telecommunication sector by creating an efficient regulatory system.

The main purpose of this document is to manage the transition process of the telecommunications market into the open or competitive environment, ensure sector's efficient working conditions, implement functions related to the universal service obligations, control market entrants activities and standard application, utilize radio spectrum properly, furthermore, expand customers daily demands and participation in global economy, business relations, increase significance of the telecommunication sector's role for implementing the country's economy and society.

Pursuant to a speed of global information technology development, liberalization and globalization changes, this statement can be amended in necessary cases.

## **II Modernization of Sector's Management/Governance/and Structural Organization**

In a manner of developing an clear structure of the telecommunication's sector management and organization, there shall be created conditions for the sector's intensive development as well as improved its efficiency.

The telecommunication sector shall have structures such as policy making, regulatory, implementation and services engaging organization.

- (1) The state administrative central organization shall have bodies with functions and powers to work out the state policy on telecommunications, develop a legal environment for the policy implementation and enforce it.
- (2) There shall be set up an independent regulatory body with functions and powers to create an efficient and fair competitive environment for entities and citizens with all type of property in the communications market, issue a license, work out standard and networks numbering integrated plan, allocate radio frequency bandwidth, enforce the implementation, make professional conclusions and decisions.
- (3) There shall be operated a body responsible for expanding and developing the telecommunication's state owned network backbone, implementing a policy to ensure its sustainable functions within framework of the authority of a Member of the Government in charge of the communications matters.
- (4) A provider with rights and duties to run services in the telecommunications market shall be carry out the communications service in the framework of a license.

**One:** To exercise power granted by the Law of Communications, the state administrative central organization shall maintain the hereunder mentioned basic directions:

- (1) Based on the requirements to implement the country's economic and social policies by investigating and evaluating telecommunications sector development, market tendency and financial status.

- (2) To elaborate legislative documents necessary for efficiency developing the sector, enforce their implementations;
- (3) To support competitions in the telecommunications market:
  - (a) To direct tariff policies towards ensuring subsidy possibilities from its other services profits for losses due to the universal service obligations till the universal services obligations provider balances its service tariffs, further undertake measures to subside the losses from the universal obligations fund;
  - (b) Any business benefit is determined by its market, thus do not restrict the number of license issuance for entrants.
- (4) The budget and private assets shall be properly used for developing the telecommunications sector.
  - (a) To generate socially qualified investment in the direction or ensuring customers demands and requirements, support providers activities in this respect:
  - (b) To survey and elaborate opportunities to render discount and support for providers conducting services to the scattered populated, remote areas and population without access/tax, compensation from the budget or fund, etc.
- (5) In consultation with relevant parties, resolve issues to improve benefits of loan, and aid in the communications sector from international financial institutes and donor countries, supervise the implementations.
- (6) Update the network numbering integrated plan and radio frequency allocation that restricted resource of the country, supervise their implementations.
- (7) For the purpose to improve proficiency of the telecommunications sector, policies towards promoting and nondiscriminating investors shall be strengthened:

**Two:** To exercise power and functions, the Commission Regulatory Committee shall maintain the following basic directions:

- (1) To ensure an opportunity to freely enter in the telecommunications market:
  - (a) To liberalize the market with regulation in the manner of registering and issuing a license to entrants desirable conducting services within the framework of the policy on the efficient



- liberalization not restricting penetration into the telecommunication market;
- (b) To specify provision connected with the satisfaction of the universal services obligations and services quality requirement, and general terms of interconnection between networks in contracts established with the licensees;
  - (c) By promoting fair competition as well as protecting customers interest, control services tariffs dominating a market;
  - (d) Award a license to communications some services on the basis of tendering.
- (2) Inspect and test the following activities of telecommunications service providers:
- Implementation of the universal service obligations;
  - Based on the services tariff and cost balance and regulation of service tariffs, interconnection and leased lines or ducts/channel/rate;
  - Service quality;
  - Neutrality of interconnection terms and conditions between networks.
- (3) Arrangement of technical regulation
- The technical regulation is comprised of radio frequency regulation, allocation, equipment standards, type approval and telecommunication numbering plan.

**Three:** The telecommunications state owned backbone network controlling agency shall, under its powers granted by the law, carry out activities of establishing state owned network utilization contract, ensuring its stable working, implementing projects according to the plan of developing the network, accumulating assets for the universal services obligations fund and disbursing them properly.

**Four:** A telecommunication provider shall run its service business on the basis of a contract established with the Communications Regulatory Committee.

### III General Strategy for the Telecommunications Sector Development

The objective of the general strategy for developing the telecommunications sector in Mongolia for 2010 is to introduce more fruitful investment along with the latest high-

tech and technology in Mongolia. This objective shall be implemented in the manner of opting for the latest modern technologies in harmony with ensuring customer demand issuing licenses to service providers as well as registering them:

- (1) To keep on the reformation and expansion of digitalization of the telecommunications network in combination with technologies of fiber optic, microwave, space and mobile communications;
- (2) To introduce the fiber technology into the backbone network, connect centers of all Aimags and town with high-speed broad bandwidth information transmission network, develop the integrated information network for the country;
- (3) To digitalize the radio and television broadcasting and receiving stations broaden the receipt coverage of radio and television broadcasting from a satellite, increase channel numbers, improve the quality of broadcasting. These measures shall be implemented step by step;
- (4) To speed up the penetration of optic cables into urban areas telephone network lines, and the copper, optic cables and wireless technologies into sub-lines and increase the coverage extent;
- (5) To introduce the space mobile communications system into the rural communications.
- (6) To improve the telecommunications service supplier, by 2010, a telephone density in urban areas shall achieve 15 phones per 100 inhabitants in Ulaanbaatar, 10 - 12 in Aimag centers, international and domestic calls from all Sums centers shall be performed automatically and ensured no less than 50 percent of the population with technical opportunities to be connected into the internet.

#### **IV Competition and Regulation in the Telecommunications Market**

The telecommunications sector regulation is targeted at developing the free entrance into the market of providers with possibilities to enhance the fruits of the sector in the manners of broadening services coverage range by promoting a competition and private investment, lowering tariffs, improving the quality.

- (1) The radio frequency bandwidth utilization service shall be granted the spectrum usage license and depending on spectrum reserves, the number and quantity of consuming shall be restricted.
- (2) By calling off the monopoly of IDD services, it is allowed to have several international gateways starting from January 1, 2002. Moreover, the financing of the universal services obligation shall be taken supports from providers of IDD and IP services.
- (3) Assure free entrance conditions for new providers of domestic call services.
- (4) For city services, spread out new services including WLL. Based on nondiscrimination of rural and remote areas networks investment, develop opportunity for utilization of the universal service obligations fund.
- (5) Assure opportunity for data communications of connecting with fixed networks and expanding them, freely issue license for international gateways. In consistent with technological development, there will not be maintained the distinctive policy or direction between data and voice communications.

## **V The Telecommunications Sector Privatization and Investment Support**

In the telecommunications network privatization, the direction towards enhancing competitive capability of the MTC/Mongolia Telecom Co., Ltd. which provides with the telecommunication service through the whole territory of Mongolia by implementing the universal services obligations along with being responsible for the network utilization shall be terminated:

- (1) Based on the transferring the network property's particular parts ownership to a privatized company with the credits for its construction and renovation alongside with debt payment obligation, reevaluating the network property and the company's future business, the privatization program shall be worked out towards determining shares advanced value and selling them to strategic investors in tendering. Further, develop resources of loan and aids for the noncommercial, in social character, telecommunications projects.
- (2) Under the basic direction of privatizing the state properties for the years of 2001 - 2004, leave the telecommunications networks international and domestic long distance transmission and international switching facilities under the state control, transfer the other assets to MTC and sell the particular parts of state controlled shares to the strategic investors;
- (3) Intensify afterwards privatization in the manner of decreasing percentage of the ownership of state assets;

- (4) National radio and television broadcasting transmission stations shall not be privatized.

## **VI The Universal Service Obligations**

Within the framework of the policy for implementing the universal services obligations, every citizen of Mongolia shall create the technical opportunity to utilize the telecommunications service. To do so, private international as well as other all sorts of financial resources shall be applied.

In areas with high demands and supplies, there shall be supported private sectors to carry out telecommunications services under common commercial conditions. Running services in the remote and dispersedly populated regions of the Mongolian territory are cost expensive, thus, there shall be created a mechanism of attracting providers there.

There shall be established a mechanism for accumulation of assets for the universal services obligations fund from providers in the telecommunications market.

The telecommunications services to regions unable/social investment/to be investigated commercial investment with this fund property, shall be financed on the basis of tendering.

Establishing of telecommunications centers available to provide with a variety of services including telephone and internets at each Sum shall be an objective. This objective shall be implemented by utilizing terrestrial, space or mobile communications technologies.

## **VII Financial Resource**

- (1) The financial resources for expansion and renovation necessary for ensuring the telecommunications markets demands shall be created in the manners of operating the precise policy on the sector's investment and finance.
- (2) The telecommunications service to subsidize the investment shall be operated with foreign, domestic as well as private investment. For the purpose of reducing the investment risk there shall be maintained directions to improve investment by transparency of regulatory activities.
- (3) Loans, aids, donations, budget funding shall be used for projects with social purposes. From the above resources, select investment consistent with the criteria of the sector task and financing organizations and finance.

**VIII Human Resource**

There are being implemented tasks to create the resources of employers with qualifications in technique, management, marketing and financing necessary for developing the information and communications technology sector.

- (1) To implement the above mentioned tasks, there shall be promoted the directions to extend domestic training system as well as enlarge foreign and international organizations assistances.
- (2) Staff for policy coordination institutions shall be involved in foreign and domestic trainings plus constantly improved their knowledge in management, technique, economy and law.
- (3) There shall be developed opportunities of utilization of the education's sector training and distance training for preparation and retaining engineers, technicians and other specialized workers in the sector.

**4. REPORT ON E-READINESS ASSESSMENT OF  
MONGOLIA (MONGOLIA DEVELOPMENT  
GATEWAY: 2002)**

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Mongolia Development  
Gateway

# **Report on E-readiness Assessment of Mongolia**

*InfoDev*, Information for Development Program Grant  
Planning the Creation of the Mongolia Development Gateway  
(Grant # CG 028)

Managed  
by:



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ICT Consulting Services

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## SUMMARY

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Within the scope of Mongolia Development Gateway Project activities (Planning phase), implemented by Infocon Co., and funded by World Bank InfoDev Program, an E-readiness Assessment was conducted to evaluate the Mongolia's potential and readiness for e-development. The analysis focused on targeted communities such as government, private sectors, education, and civil society.

The objective of the E-readiness Assessment was to analyze the current stage of ICT development in target communities, identifying their E-needs, and assess the country's ability to join the networked world, bridging the intellectual and technical digital divide.

Despite a relatively short timeframe, the project team managed to prepare an overall picture of telecommunication infrastructure, computerization, and Internet access available to individuals and organizations in Mongolia. Interviews, discussions, and meetings with key representatives of various communities, as well as reviews of study reports and publications support statistics and data included in the report. Lack of official statistics available on ICT development, and the lack of reliable data sources restricted preparing a comprehensive study on e-readiness covering the entire country. Some of data was obtained from the questionnaires completed during the analysis. Most of IT related statistics were sourced from Infocon Co.'s previous study reports.

The overall result of the study indicates telecommunication infrastructure and opportunities for Internet access are relatively well developed in capital city, Ulaanbaatar, and very poor in rural areas — especially in remote soums (counties). However, lack of local content and lack of awareness on IT applications hinder wider use of ICT by people and organizations.

Main findings on E-readiness in target communities include:

### Government:

- Central government offices are computerized and have an access to Internet
- Local governments, in aimags (province), are computerized but with limited use
- Most government agencies have created their own websites, but they are mostly an introduction or web-presence function
- Government authorities are slow in replacing legacy communication models, and there is limited or no awareness on efficient use of ICT
- No information exchange network developed

### Civil society:

- Low income and disabled people can't afford Internet access
- Public Internet Centers and Internet cafes are available to the public
- Most NGOs have no access to Internet due to limited project funds
- Lack awareness in Internet and developing communication models



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#### Business community:

- Computer penetration is quite high and Internet access is available in large and medium companies — but applications are limited, with file sharing as dominant network application
- Management information systems not introduced or in general use
- Top management not aware of ICT's role as an efficient or enabling business tool
- Most large companies have internal IT departments with duties focused on day-to-day maintenance or assisting end-users
- SMEs are more adaptable to implement new technology, but capital expenditure budget purchasing power is lower than larger companies

#### Academia and educational community:

- State owned colleges and universities are well computerized and networked
- A few secondary schools have computer labs and Internet access provided through aid projects
- Research institutes have computers with Internet used for e-mailing, with almost all research papers in hard-copy
- Initial initiatives in distance learning emerged through international aid.

Results of the SWOT analysis made on ICT sector development in Mongolia are summarized at the end of this report. There is need to complete addition in-depth analysis on ICT preparedness in further stages of e-development, and a need to introduce or elaborate on methodologies and performance indicators of Mongolia's ICT development.

**The Assessment indicators of E-Readiness of Mongolia for the Networked World** are shown in the Annex-I.



## METHODOLOGY

E-readiness assessment methodology and approach used by the team are based on the guide for developing countries “Readiness for the Networked World”, available at <http://www.readinessguide.org>, as presented by the Center for International Development at Harvard University. Following HUG methodology, the categories are segmented into five groups; network access, networked learning, networked society, networked economy, and network policy.

The project examined all 19 categories of assessment indicators presented in HUG’s assessment methodology guide, concluding and ranking each by levels of advancement (in Stages 1-4).

The following activities were carried out for gathering information and data:

### Literature Survey:

Review existing documents, study materials, and reports

### Interviews:

Personal interviews with ICT experts, government officials, National ICT Committee members, and community representatives

### Surveys:

Distributed questionnaires among selected target groups, collected and processed data, and analyzed findings

### Focus Group Discussion:

Meetings held with representatives from government, civil society, academia, education, private sector, and international organizations

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## 1. COUNTRY OVERVIEW

Mongolia is an independent, democratic, market-driven country landlocked between China and Russia. Mongolia is an area of 1,566,500 square kilometers with a population of about 2.374<sup>1</sup> million, of which over 67% live in remote and rural areas. The capital city, Ulaanbaatar, accounts for approximately 32% of the total population. Mongolia has a population density of 1.5 per square kilometer, one of the lowest in the world. The country has a relatively low growth rate of 1.9% (2000), down from 2.5% in 1989. At this rate Mongolia's population will reach 3.1 million by end of year 2010.

The demographic statistic shows that 40.7% of the population is below 18 years, 52.1% between 18 to 59 years, and only 5.2% over 60 years old. According to Population and House Census of 2000, 541,149 households are registered. High literacy rate (97.8%) and a stable society are considered among Mongolia's strengths.

Administratively, the country is divided into 21 aimags (provinces) and more than 360 soums (counties). The population in the provinces usually does not reach more than 100'000 persons; with the average at 80'000.

There are more than 683 primary and secondary schools, and 172 universities or higher education institutions in Mongolia. The enrollment rate of 8 years is 83.5% and 89.6% of children aged 8-15 years are enrolled in education institutions. More than 85 thousand students are attending higher education and vocational training institutions (in 2000), of which approximately 3% of total students are attend ICT related courses.

### 1.1 Development strategy

In 1990 political reform and government transition occurred peacefully. Since 1991 measures directed toward establishing an economic structure implementing phased market deregulation have been pursued, with intentions to open the Mongolian markets to the world community. Mongolia's government defines the country's development strategy as an attempt to establish a democratic and humanitarian society. Different development models such as "Knowledge-based Economies," "IT-driven Economies," etc., are under discussion among government and public communities. The country's new economic development consists of comprehensive policies, and a wide-range of short-term activities. Those activities strive to promote and accelerate structural economic and legislative reform, stabilize Mongolia's economic crisis, privatization, promote national industry, and establish a new economic environment building a sustained economic foundation for further economic growth.

Within the framework of Mongolia's development strategy, information and communication technology is positioned as a key, and a vital, development factor promoting Mongolia's "Information Communication Technology Vision-2010" program, as defined in 1998. A new, updated national action plan for IT development is currently under discussion, including additional enhancements made possible though global ICT and business management innovations.

Based on survey results and government development strategy, development priorities and objectives for Mongolian society could minimize information and communication infrastructure development differ-



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ences between rural and urban areas, ensure equal access to information resources from urban and remote locations, develop human resources, improve IT skills, further promoting development of Mongolian language online content, applications and services.

Another important objective is to improve Mongolia's ICT penetration and development. This requires effort to improve PC penetration at all social community levels, including rural areas, and ensure national dial access to the Internet. Higher levels of PC penetration within communities will enable further development of ICT and higher utilization of information resources.

### 1.2 Economy

The GDP since 1994 has registered positive growth rates, and in 1998 increased by 3.5% over the previous year. The GDP per capita figure confirms Mongolia still belongs to low-income category countries. GDP growth was 2.4% in 1996, 4% in 1997, 3.5% in 1998, 3% in 1999, and 1.1% in 2000.

|                 | 1996  | 1997  | 1998 | 1999 | 2000 |
|-----------------|-------|-------|------|------|------|
| Inflation ratio | 44.6% | 20.5% | 6%   | 10%  | 8.1% |

Source: National Statistical Office, 2000

After 1992 inflation slowed, reaching 6% in 1998. According to the Statistical Yearbook of Mongolia's National Statistical Office, inflation is anticipated to stay at 8.1% for 2000.

Major components of Gross Domestic Products statistics are agriculture (36%), industry (24%), trade (19%), telecommunications (6%), and services/others (15%). The most important export products are copper, molybdenum, gold, coal and oil.

Mongolia had close economic relationships

with former eastern European countries and Russia, with nearly 90% of trade and economic turnover among those countries until 1990. After collapse of economic relations between the Soviet Union and former socialist countries, Mongolia faced an economic crisis, requiring complex long-term economic, political, and strategic development policies to join the world community. Mongolian foreign policy has changed in response to integration and globalization of the world economy, opening its market and liberalizing foreign trade policy. According to FIFTA<sup>2</sup>, Mongolian foreign trade is characterized by high percentages of trade volume with Asian countries, with trade between the former Soviet Union and eastern European countries significantly reduced.

Japan and Korea play an important, dominant role in telecommunication investment. The USA, Germany, and France have also shown interest in ICT sector development. According to the FIFTA, total foreign investment in the ICT sector totaled around 6% of total foreign direct investment in-

flow during the past 5 years.

Planning and discussions continue for regional development of the economy supporting central, western, eastern and southern regions. Major developed cities such as Ulaanbaatar, Erdenet, and Darkhan belong to the central economic region, producing almost 80-90% of domestic product output. Other regions are isolated from major markets and are less developed because of sparse population and poor infrastructure.

<sup>1</sup> National Statistical Yearbook, 2000

<sup>2</sup> Foreign Investment and Foreign Trade Agency, <http://www.investnet.mn>