AIGETOA SUGGESTIONS FOR CM-SEGMENT POST REVIVAL-VRS PACKAGE

Introduction

CM Segment is currently implementing the projects and maintaining the Mobile service of BSNL. Our proposals are for revamping of the present condition of CM sector which is in quagmire due to its fragility of providing new age services and data services up to expectations of new age Customer who lives in a Tec mania age with available resources in most economical and professional methods keeping the scope for continual improvements.

The existing organizational structure up to CGM can be retained. CMD-→Dir CM- - ->Zonal / Circle CGM→ GM NWO/P CM (under circle office). The CM core network(NSS), OMCRs, LEA teams, Term cells, Radio/ Network planning teams and Network Quality Management teams will be directly reporting to Circle Office GM Mobile Service. The BSS team also may be integrated with this team. But in case it is difficult to integrate right now due to on-going VRS activities, same may be done after some time. For effective manpower utilization, it is better to integrate complete CM network under one unit, as done previously in Kerala.

Our Suggestions are categorized in to

A. Organisational Level
1. Circle Level Teams for Core and BSS Projects and Maintenance

B. CM-Circle Level
1. Network Quality Management Team
2. CM Installation team
3. NSS- OMC Switch
4. OMC Radio
5. RP- (Radio and Access network planning and Maintenance Team)
6. Infra Sharing Coordination (Circle Level)

C. CM- The Spectrum Situation of BSNL & Suggestions
1. 2G 900MHz Spectrum License Expiry scenario
2. 2.6GHz (WiMAX) Spectrum Scenario
3. 2G 1800MHz Spectrum Choice
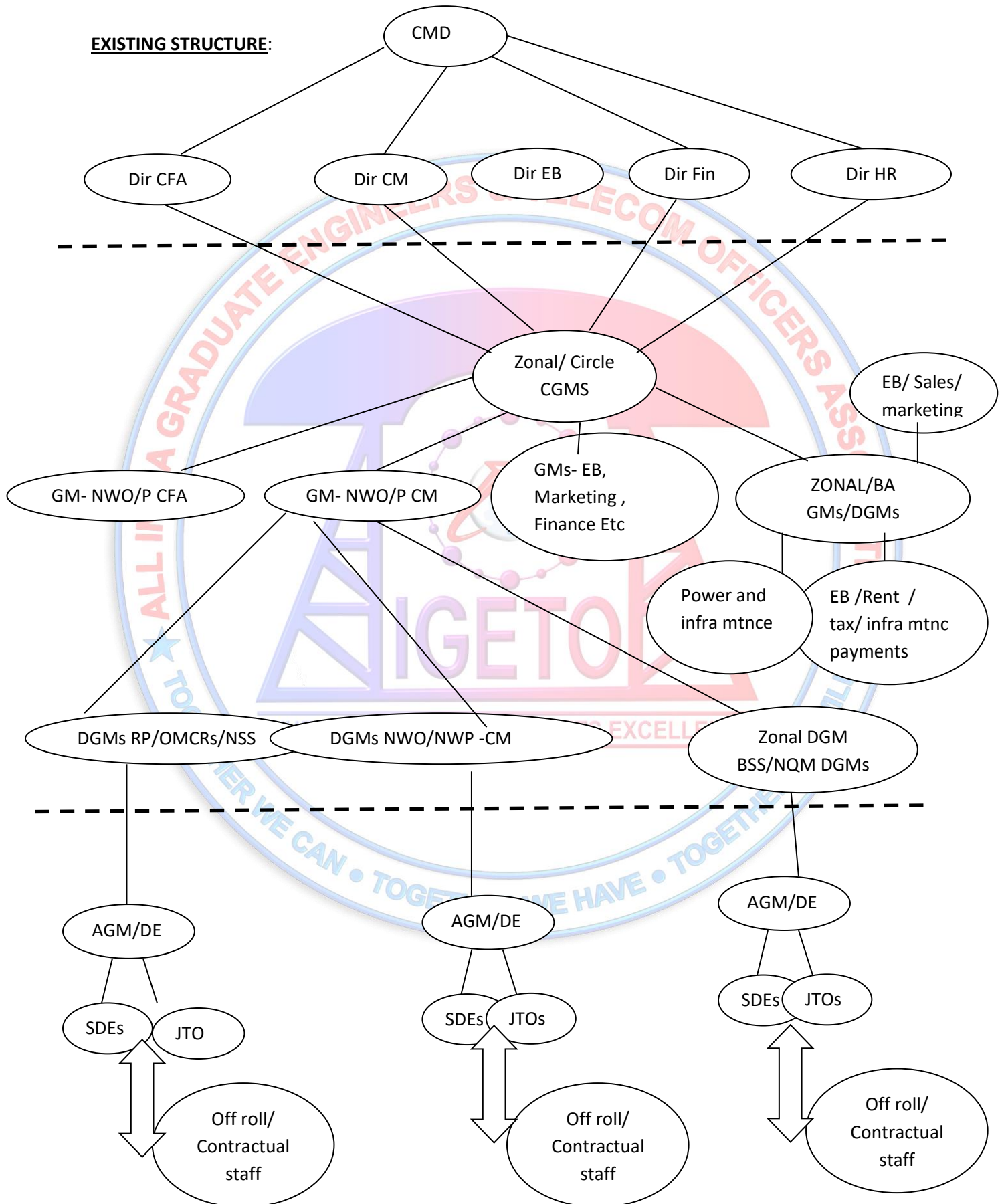4. Equipment Purchase & Network Deployment

D. CM –BA Level
1. Electricity payment, statutory payments & rent payment handling team
2. Diesel filling team
3. Infra Maintenance Team
4. L1 Maintenance support staff
5. Infra Sharing Coordination
6. BSS team (Finally integrate with Circle)

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EXISTING STRUCTURE:

CMD

Dir CFA

Dir CM

Dir EB

Dir Fin

Dir HR

Zonal/ Circle CGMS

EB/ Sales/ marketing

GM- NWO/P CFA

GM- NWO/P CM

GMs- EB, Marketing , Finance Etc

ZONAL/BA GMs/DGMs

Power and infra mtnce

EB /Rent / tax/ infra mtnc payments

DGMs RP/OMCRs/NSS

DGMs NWO/NWP -CM

Zonal DGM BSS/NQM DGMs

AGM/DE

AGM/DE

AGM/DE

SDEs

JTO

SDEs

JTOs

SDEs

JTOs

Off roll/ Contractual staff

Off roll/ Contractual staff

Off roll/ Contractual staff

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A. Organisational Level

Main Units of CM

- Circle/Zonal HQ team headed by GM with Planning and operations DGMs,
- NSS headed by DGM NSS with units like MSCs, GGSNs, SGSNs, IP infrastructure PEs, LEA section,
- OMCR Centralized OMCR team
- Radio and Access network planning team
- NQM team
- BSS team
- Off roll support contract staff- L1 maintenance
- Electricity payment, statutory payments & rent payment handling team- reporting to BA head
- Diesel filling team- reporting to BA head
- Power and Infra Maintenance- reporting to BA head

A.1. **Circle Level Teams for Core and BSS Projects and Maintenance**

Under Circle Mobile service [CM] GM, DGMS of planning, operations etc will be working at Circle HQ and DGM OMCR/RP/NSS/NQM/BSS will be working in respective. Under these DGMS, AGMs and their SDE/JTOs with outsourced / contractual staff will be working. SDEs & JTOs may be reported to AGM directly. Each SDE or JTO will have these outsourced staff under him for network maintenance.

B. CM-Circle Level

B.1 .Network Quality Management Team

Two levels will be better-BA level for Customer complaint attending and CCM complaint checking – 1-2 SDE/JTO per 300 sites. Circle level for RF related Drive Tests and optimisation – 3 SDE/JTO per 300 sites

- Routine Drive Test and optimisation
- Cluster optimisation
- Conducting and Submit the Corporate Office/ DoT/TRAI Drive Test reports
- Monitor Network KPI and coordinate rectification with BSS/RP/OMCR/OMCS (Ensure KPI within standard values)
- Attend RF related complaints and implement the changes for optimisation
- Micro Site installation/Sector additions/Configuration change/Cab additions in commercially important and low coverage locations
- Backhaul/Transmission/transport planning , monitoring and up gradation
- Analysis of Network parameters and implement new and additional features for network optimisation and capacity addition

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- Initiate RF parameter changes for optimisation
- Hard parameter like BSS Hardware , antenna Type, Height , Orientation and tilt modification for network optimisation
- Coordination of vendor drive test for new sites and swaps
- Conduct drive test of New sites and swap sites
- RF related issues attending and rectification
- Electromagnetic Radiation site survey of new sites and modification to submit in NEP app
- Bench marking Drive Test with other operators
- New site proposal/site survey/ acquisition/installation on need basis or coordination
- Automatic Frequency Planning support to RP and fine tuning of data before and after implementation
- Analysis of Core network parameters affecting customers Service Quality and rectification in coordination with Core Team
- Coordination with Installation Team , Radio planning , OMCR and OMCS during project and swap implementation
- Coordination with transmission Team

B.2) CM Installation

- BSS installation , AT and commissioning of Telecom BSS equipment
- Power plant ,DG and Battery infra installations
- Tower/Prefab installation coordination
- Swap coordination
- Infra upgradation / replacement works
- Backhaul/OF media/Transport layer for new site/ swap coordination
- Microwave link installation
- Implementation of Work through vendors
- EMR survey of new sites for TERM submission

Two SDES/JTOS per 300 site cluster will be better

B.3. NSS –OMC SWITCH

Unit is under DGM NSS and is reporting to CO-MS GM.

- ➤ The core locations should be limited. Approximately one location per 20 lakh connection is required, other than Zonal elements like IN, GGSN, LI Etc.
- ➤ Each location may be entrusted to one AGM and the SDEs/ JTOs/JEs should be reporting to him directly.
- ➤ Performance target should be given for Each AGM for activities.
- ➤ One SDE/JTO/JE per 5 Lakh connections may be posted.

- Even though the SDEs/JTOs/JEs are sitting in different NSS locations, they should be considered as a resource pool and team based activities should be formed. The NSS activities should be distributed among different NSS teams at different locations. For example Data complaint handling should be handled by a team, IP/MPLS configuration may be entrusted to another team. DGM NSS will decide the team activities.
- In NSS too much outsourcing cannot be done for configuration management. For Infra maintenance and other maintenance activities, L1 Maintenance support staff may be engaged on contract basis as done for BSS.
- A central round the clock monitoring team may be formed for monitoring NSS elements and its Infra with outsourced staff.
- There shall be at least one AGM/SDE level officers associated with Core Installation for coordination and ensuring proper knowledge transfer at each NSS location. They will be associated with routine NSS activities when there is no project is going on.

B.4.OMC Radio

Unit is under DGM OMCR and RP and is reporting to CO-MS GM.

- Circle level OMCR will be better. For small circles, it can be clubbed according to the number of BTSs.
- It is advisable that CPAN other new MPL –TP based transmission L2 level NOC also integrated with OMCR so that project implementation and fault rectification are better coordinated[as already implemented in Kerala Circle].
- In OMC certain things can be done with outsourced staff, like routine alarm check and escalation, round the clock O&M support etc. For such activities skilled resource persons may be used in OMC as support staff. They will work under the regular BSNL staff. At least one duty person per Network vendor or 3 to 4 duty persons for an OMC with 5000 BTS locations during shift cycle (mainly during 6AM to 9 PM)
- Since support from OMC is affecting entire BSS team, reasonable BSNL staffs is required in OMC.
- Round the clock manning is required. During the night time one person for the complete network is enough.
- In OMC a flat reporting to DGM is required. Up to AGM level officers will have to do the technical activities.[this is required as lower level staff will be very less in future].
- Upto AGM level staff will have to come in shift duties. But suitable modifications with respect to the local conditions may be done.
- For 250 sites one JE/JTO/SDE/AGM is required to be posted for scheduling the shift duty.
- Network/ Vendor wise grouping may be done and charges may be assigned to senior most AGM in that group.
- An in house IT team should be there with 4 engineers. They will develop IT solutions for automating the activities, develop and maintain portals/ Apps like OMCWEB of Kerala Circle. All

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AMC handling, Outage escalation, site creations, NSR(new site requests), Reports etc. are to be via such portals.

TERM EMR SUBMISSION

➢ EMR certification
➢ Provide the Sites Data(2G,3G,WLL,WiMax and other operator) to vendor for EMR survey
➢ Prepare the EMR Self certification and submit to TERM Cell.
➢ Monitor the EMR Self certification survey and Reports generated by the vendors
➢ Co ordinate with Vendors, TERM cell and BSS for EMR submission and EMR Audit.
➢ ** The implementation of Process of EMR self certification in PMS is under progress

B.5 RP- (Radio and Access network planning and Maintenance Team)

- Planning of Core Network elements and its suitable locations
- Project material planning and project monitoring
- Expansion Plan, Service Improvement Plan (Like Capacity, coverage, railway, village coverage etc.), Dimensioning, Swap, Finalise the number of BTS, BSC etc.
- Site Planning
- Identify Most suitable Location to serve the geographical area , Traffic sharing , Economy and fix the Height Required and propose in PMS
- Update the Data in Planning Tool
- Collect Details of Railway locations and check requirement, give to BSS/NQM for Survey
- Coordinate the site survey and acquisition
- Process the New Site Proposals from Field(BSS) and SSA . Allot RP-ID in PMS
- Site Type Selection BSNL/ANCHOR/SHARING
- Site Suitability Verification and MW feasibility Study (through PMS)
- Making Over of site to BA for Acquisition by SSA(SDE Project)
- Service order issuing to IP for infra work with permission of CGM
- Making Over for Installation and Commissioning   (SDE Project) to vendors or corresponding civil/electrical/Telecom wings
- Project progress monitoring.
- Coordination with Vendo , Installation Team , BA and BSS for speedy implementation.
- Connectivity Planning and Monitoring the progress of implementation.
- RP provides the Parenting Details like MSC ,BSC and Configurations for project and rearrangements in case of capacity addition and swap
- NSR Processing :-Give Soft Parameters BCCH, BSIC, LAC ,CELLID ,HSN ,MAIO , HOP LIST , intra and inter technology Neighbors for implementation and forward to OMCR/MSC (through PMS)
- Site Integration and ON AIR monitoring and data updation.
- Coordination of Optimization and Coverage ATs
- Updation of Site Parameters in Planning Tool and verify the Optimization Process

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- Drive Log ,RF AT report and FFC Report verification
- RF parameter change request verification and providing suitable RF parameters to OMCR
- Tools used-Planning Tools(Atoll and Aircom Asset) for prediction and analysis ,Google Earth with Exports from Planning Tool ,Post processing tools(Actix, Navigator ,Gladiator) to analyze the Drive Logs
- Automatic Frequency Planning implementation

Performance Monitoring of Network(By RP and OMCR)

Performance Report Analysis and Issues trouble Shooting
Neighbour, congestion relief and other soft radio parameter planning and optimization for improvement of network KPIs
Process Change Requests ,Swap CRs and forwarding to OMC/MSC for implementation
Analyse Site Expansion/Rearrangement works and recommend for WorkOrder
Updation of Site Parameters in Planning Tool and verify and update the Optimization Processes carried out by NQMs /BSS
Drive Logs Analysis
Co-ordination of the activities of MSC/BSC re-homing   re-parenting of BTSs for network expansion ,rearrangement and in case of new vendors equipment deployment
Implementation of new GSM features in various sites
Check and Forward for implementation of Frequency and reorientation/Hard parameter change Plans for the Cluster and other optimization

B.6 INFRA Sharing Coordination (Circle Level)

- Circle level coordination with Service Providers and BA , preferably SDE OP
- Coordination for infra payments

C. The Spectrum Situation of BSNL & Suggestions

C.1. The 2G 900MHz Spectrum Licence Expiry scenario:

The license of 2G spectrum in 900 MHz currently being used by BSNL is going to be expired by February 2020. The request by BSNL to extend the license period by at least 2 years is already rejected by Department of Telecommunications (DoT). Presently BSNL is having 6.2 MHz Spectrum in 900 MHz (known as Primary GSM Band) which is the main spectrum used for providing 2G Technology services. This allotted to BSNL in the year 2000 and the 20 year license period is almost over.

The BSNL's loss of basic 2G spectrum (within 4 months time from now) will result in loss of communication facilities in Key areas where BSNL is the only Service provider like Lakshadweep & Andaman Nicobar Islands and many other rural areas where Private Operators are not providing service because of the Profitability concerns. Also Key Strategic areas like Jammu & Kashmir, Border areas,

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Places with Maoist issues etc, there will be no Government owned voice communication facilities. It is well known &accepted fact now that BSNL is the only operator who retains services at any cost during the critical natural disaster situations like Floods, Earth Quakes etc- as was clearly evident during last 2 flood situations in Kerala.

   Since majority of BSNL's revenue still comes from the voice (even though Data revenue is slowly increasing) the sudden withdrawal of 2G spectrum will result in making a huge dent in the company's revenue which is already on the decline and can completely destabilize company's financial as well as operational situation thus bring the company to a complete standstill(along the chaos it will create because of the loss of communication facilities and complete cut off of many of the remote and rural areas all along India and during the critical situations like natural disasters). The present stand of DoT that BSNL should participate in the Spectrum Auction even to renew the 900MHz license, is not financially feasible in the present scenario and not at all practical. These will only result in BSNL losing the license and communication breakdowns in various parts of the country.

Suggestion:

It is of utmost importance that 900 MHz 2G spectrum license of BSNL is renewed and be made liberalized, without any financial implications on BSNL.

The 6.2MHz spectrum in 900 band which BSNL is having now is non-liberalized and therefore can be used only 2G technology. **One of key strategic move Govt can do to revive BSNL is making this 900 MHz spectrum liberalised & renew the license** which will allow BSNL to continue using this spectrum for 2G (voice services) all along the country for the time being and at the same giving BSNL the powerful futuristic choice of using this spectrum for launching country wide 4G services. This is perfectly technically possible as 4G(LTE) technology can be deployed in 900MHz (Band 8) and there are 3 GPP standards defined for LTE in 900Band .It is widely expected in the Indian telecom industry by experts that within a period of 2 years almost all of the mobile customers presently using LTE non compatible handsets can be upgraded/migrated to LTE so that they can use voice service through VoLTE

C.2. The 2.6GHz (Wimax) Spectrum Scenario:

BSNL is having 20MHz spectrum in 2.6GHz band in most of the circles including profit generating Circles like Kerala. This band can be effectively used for deploying very high capacity 4G services in combination with 5 MHz BSNL is having in 2100MHz band.

 This 5MHz in 2100 Band was originally allotted for 3G services, but since it is liberalized spectrum it can be used for any technology like 4G-In fact because Govt is still to allot exclusive 4G spectrum to BSNL, BSNL has started launching limited 4G services in selected cities using this 2100 band 5Mhz spectrum by shutting down 3G services in such areas.

Suggestion:

   Allow BSNL to use the 20MHz spectrum in 2.6GHz band for deploying 4G services.

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BSNL's present approved Tender (Phase 8.4 Tender for 2G/3G/4G Network Expansion) doesn't allow purchase of 4G equipments in 2.6GHz band(which is TDD band and the Network Radio equipments should be supporting TDD as per 3GPP specifications) . **Action should be taken for calling a new tender or including 2.6GHz band spectrum band TDD equipments in next expansion tender under consideration and all possible efforts should be done to expedite the tendering procedure and deploy the equipments in network within maximum period of 1 year.**

Pls note that this not having any financial implications on part of Govt and BSNL should simply be allowed to use the spectrum it legally attained by paying license charges

C.3. The 2G 1800MHz Spectrum Choice

BSNL in addition to 6.2 MHz in 900MHz is also having 3.8MHz in 1800 MHz (hence total of 10MHz) for 2G network deployment. This 1800MHz spectrum is mainly used as a capacity enhancing spectrum for voice services in 2G. As data requirements are increasing exponentially every year and customers are migrating to technologies with higher data capabilities like 3G/4G ,the 1800MHz spectrum, considering its huge spectrum charges   is underutilized. Since like 900 Band spectrum,1800 Band spectrum with BSNL is not liberalized BSNL is unable to make full use of this costly spectrum by using it for 4G.

Suggestion:

Allow BSNL to use the 1800 MHz spectrum for deploying 4G services by making it liberalised without any financial implications on BSNL

Since 1800 MHz (band 1) is the most commonly used spectrum for 4G deployment in India, allowing BSNL to use the 1800 MHz spectrum the company already owns will go in a long way in making sure 4G services of BSNL will be of highest quality. This should be preferably done with additional allocation of 1.2 MHz (at no or nominal cost), along with existing 3.8MHz available with BSNL to make it a standard 5MHz LTE carrier.

The above mentioned 3 steps (or at least 2 of them) will solve the spectrum related issues of BSNL and enable the company to go full fledged deployment of 4G services throughout the country and offer high quality low cost voice & data services to the people of India.

C.4. Equipment Purchase & Network Deployment

It is of critical importance that BSNL should be able to do the purchase of Network Equipments & deploy the network in the country within minimum possible time.

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Since Wireless technology is rapidly changing from 3G to 4G and now even to 5G/IoT etc, it is very important purchasing process and network deployment is completed in a time bound manner. It is often seen from past experiences that because of the administrative formalities and bureaucratic issues typically experienced in Govt/PSU setup, by the time planned network expansion are completed, the deployed technology may have become obsolete and the competitors have moved forward considerably.

The fund from the proposed Monetization of assets of BSNL should be strictly utilized for latest technology deployment like 4G(LTE) in order to make sure that spectrum allocation is also utilized to maximum extent. Also tendering procedures may be expedited to ensure the purchase process is completed within 3 months and deployment in next 6 months. BSNL management should be given complete authority in tendering & purchase processes for this to happen and a parliamentary standing committee should be responsible   to monitor the progress and make sure that this timeline are strictly followed and to provide necessary support from time to time.
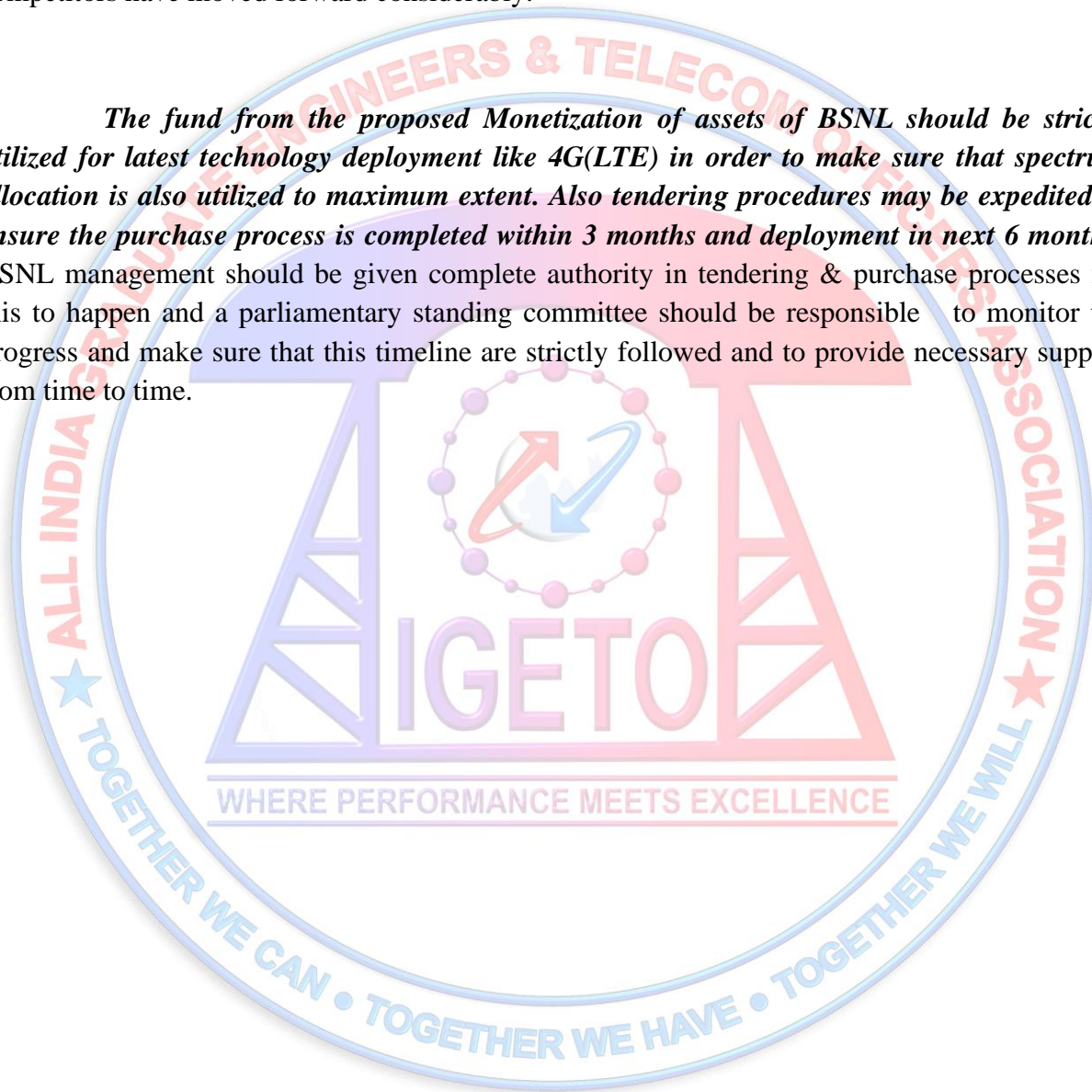
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D.CM –BA Level

D.1. Electricity payment, statutory payments & rent payment handling team

This team will be headquartered at BA HQ and is under BA unit. It may be manned by any accounting or operations officer with one or two outsourced data entry staff. They should do the following activities.

> - They should collect KSEB bills of all BTSs, Exchanges and other BSNL buildings.
> - Check for any abnormality in amount and in case any abnormality is there, they will consult with concerned BSS / Exchange in charges
> - Arrange Payment of the bill

D.2.Diesel filling team

This team will be headquartered at BA HQ and is under BA unit.

They should do the following activities.

> - They will have an arrangement of petro card.
> - They will have some contract/ outsourced team for collecting the diesel from pumps and filling diesel at Exchanges, BTS locations and other BSNL buildings.
> - This unit in charge will instruct the priority for filling, based on the guidelines stipulated by BSS/Exchange teams and availability. Preference always should be based on the revenue earned. Fund allocation for BAs for this also should be based on revenue earned.
> - The cross checking may be entrusted to Exchange/ BSS in charges.
> - Automation for monitoring the available quantity of diesel in DGs is to be done, so that the central team can monitor it and fill accordingly.
> - An application integrated to our ERP with geo tagging is to be used for reporting the filling status by the contract staff.

D.3.Infra Maintenance Team

The passive infra maintenance of all exchanges and BTS may be entrusted to a wing under BA. This wing should handle maintenance of all power plants, DGs ACs etc with the help of necessary AMCs and outsourced L1 support technicians. They should ensure uninterrupted Power supply and infra availability. BSNL staffing may be decided in CFA vertical. Their performance should be measured based on the BTS/Power/Infra uptime.

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D.4.Infra Sharing Coordination

- BA level coordinator for infra payments and coordination
- BA planning taking care the Infra, rent and power augmentation
- BSS analysing the site level infra , power and space availability

D.5. L1 Maintenance support staff

These staffs will be on the basis of contract. Contractor will provide necessary manpower on need basis.   Manpower may be suitably categorized, while calling tender, ie for CM vertical, Infra Maintenance, data entry operations for Accounts, GM offices, OMCs, MSCs etc. Combined or separate tenders may be called at BA/ Circle level. The activities and features (especially for CM/BTS O&M) are

- ➤ Tender / contract may be for all verticals but allocated on exclusive basis.
- ➤ May be used for BTS locations and exchange locations.
- ➤ Tender may be called for different category of resource person on need basis
- ➤ Geo tagged app based reporting is required.
- ➤ There is a fixed and variable part of payment.
- ➤ Variable part is based on the docket raised for the L1 maintenance activity, time to restore, repetition of the same fault for the same NE and overall prevention of the outage.
- ➤ Fixed part is for the number of resource persons
- ➤ Rigger activity is also included as a separate category, which also have variable and fixed part of payment.
- ➤ DG/PP L1 maintenance activity too included, like starting DG manual, bypassing of some elements, restoring tripped MCBs/ELCBs etc.
- ➤ MW IDU replacement
- ➤ MW RRH replacement.
- ➤ BTS RRH replacement.
- ➤ OFC (CPRI) / RF cable fault restoration with spare.
- ➤ OFC splicing using BSNL Machine
- ➤ All material will be provided by BSNL.
- ➤ TA based on distance at a particular rate may be provided , if transportation by BSNL is not available.
- ➤ Needs to include all possible such requirement.
- ➤ Resource persons may be allotted based on cluster of BTSs or small exchange wise. For big exchanges may be exclusively allotted

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D.6.BSS team (Finally to be integrated with Circle)-

Initial stage of VRS implementation status quo may be implemented

BSS may be handled by Zonal DGM BSS, under which AGMS are reporting. SDE & JTOs are reporting to AGMs. AGMs should be responsible for the performance of the BSS network under him.   Sites may be allotted to SDEs and JTOs individually.

> ➢ Primary responsibility is to ensure the 99.999 % uptime of BTSs/BSCs/RNCs, in coordination with Infra team and Transmission team.
> ➢ Performance will be measured based on uptime
> ➢ Opex will be allotted on the basis of revenue earned from the area/ cluster
> ➢ Should act as the bridge between marketing/Customer and NQM team for handling customer complaints, coverage Issues, New site addition, new sector addition etc.
> ➢ Will coordinate with NQM, Transmission, OMC etc for BTS swaps and other such activities
> ➢ Will coordinate with Infra maintenance team [*assuming that there is a separate Infra maintenance team in BA*] for making sure that availability of un interrupted power
> ➢ Will cross check diesel filling and will coordinate with Diesel filling Team at BA HQ.
> ➢ In case there is no separate Infra maintenance team, will maintain the Infra with AMC.
> ➢ Will give feed backs/ inputs for the Electricity/Statutory payment Team and will act on their suggestions like for new electricity connection.

- Since Infra is handled by Infra team each SDE or JTO can handle primary responsibility of 50 to 60 BTSs. Secondary responsibility of additional 50 to 60 sites may be also given to the same JTO/SDE.