

# **CRS in India**

## **Infrastructure & Technology considerations**

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# Community Radio Station

- Provides an opportunity for the community to own and control its own means of communication
- Takes the medium to the people and encourages their participation
- Allow people to take an active part, to defend their interests and to help solve their problems.
- Gives People get a chance to express themselves in ways they wish to
- Acts as a catalyst for empowerment.
- Community Radio is truly democratic and grassroots oriented.

# CRS in India – Eligibility Criterion

- State Agricultural Universities (SAUs), ICAR institutions and Krishi Vigyan Kendras.
- Well established educational institutions.
- Non-profit' organizations registered under the societies act and having a proven record of at least three years of service to the local community.
- Having ownership and management structure reflective of the community that CRS seeks to serve.
- Programmes for broadcast should be relevant to the educational, developmental, social and cultural needs of the community.

# How to apply for CRS

- The policy guidelines and the application form available at [www.mib.nic.in](http://www.mib.nic.in) or can be obtained on written request. Application / processing fee Rs.2500/- .
- Bank Guarantee of Rs.25,000/- at the time of signing the Grant of Permission Agreement (GOPA).
- Requisite fee to be paid to WPC for frequency allocation, Standing Committee on Frequency Allocation (SACFA) clearance and Wireless Operating License (WOL) etc.
- The Universities/Deemed University or Government run educational institution have a single window clearance
- In other cases, Letters of Intent (LOI) will be issued only on receipt of clearance from Ministries of Home Affairs, Defence & HRD (in case of private educational institutions) and allocation of frequency by WPC.

# Steps to process the application

- Within one month of receipt of the application in the prescribed form, MIB shall process the application form and either communicate to the applicant deficiencies if any, or will send the copies of the application to other Ministries concerned for clearance.
- Within one month of the issue of the LOI, applicant has to apply, in the prescribed format and with the registration fee to the WPC for frequency and SACFA clearance.
- A time frame of six months from the date of application has been fixed for issuing SACFA clearance
- On receipt of SACFA clearance, the LOI holder will be invited to sign the GOPA.
- The LOI holder shall also furnish a bank guarantee in the prescribed format for a sum of Rs.25,000/- along with GOPA .
- The GOPA will enable the LOI holder to seek wireless operating License (WOL) from the WPC.

# Permission

- The permission/license will be for a period of 5 years
- The GOPA will be non-transferable.
- No permission fee shall be levied. However, spectrum usage fee to be paid to WPC wing of Ministry of Communication & IT.
- The permission holder shall set up the community radio station within three months of receipt of all clearances i.e. signing of GOPA.
- Failure to comply with time schedule shall make liable for cancellation of LOI/GOPA and forfeiture of the bank guarantee.
- Permission for CRS is subject to regulatory authority as and when it comes into force.
- Govt. of India reserves the right to take over the entire services & network in the interest of national security.

# Technical Parameters

- Aimed at covering an area of 5-10km radius.
- Effective Radiated Power (ERP) specified is 100 W. (in special cases, UPTO 250 Watt)
- Maximum tower height of 30m minimum height 15m
- Community radio to be located within the campus in case of Educational institutes.
- NGOs & others to locate their transmitter, antenna within the center of geographical area of the community they seek to serve

# Technology behind Radio

- Acoustic to Electromagnetic
- AF to RF
- Modulation – Putting the Rider on Horse
- Amplitude Modulation
- Frequency Modulation
- Advantages of FM
- Limitations - Propagation



# Criteria for Site selection

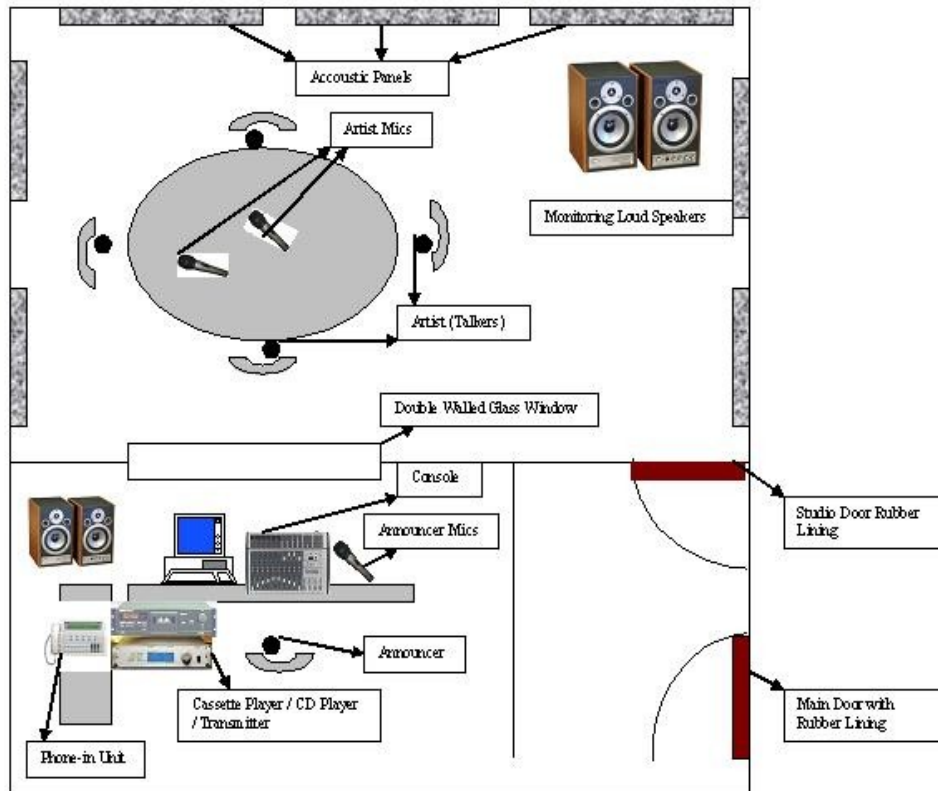
- Establishment cost / Financial resources.
- Terrain profile.
- Availability and reliability of power supply.
- Manmade and ambient noise.
- Ventilation and freedom from dust.
- Likelihood of lightening and water damage.
- Availability of space to erect towers / masts.
- Accessibility to the participants.
- Acceptability by the community.
- Security considerations.

# Technology Considerations

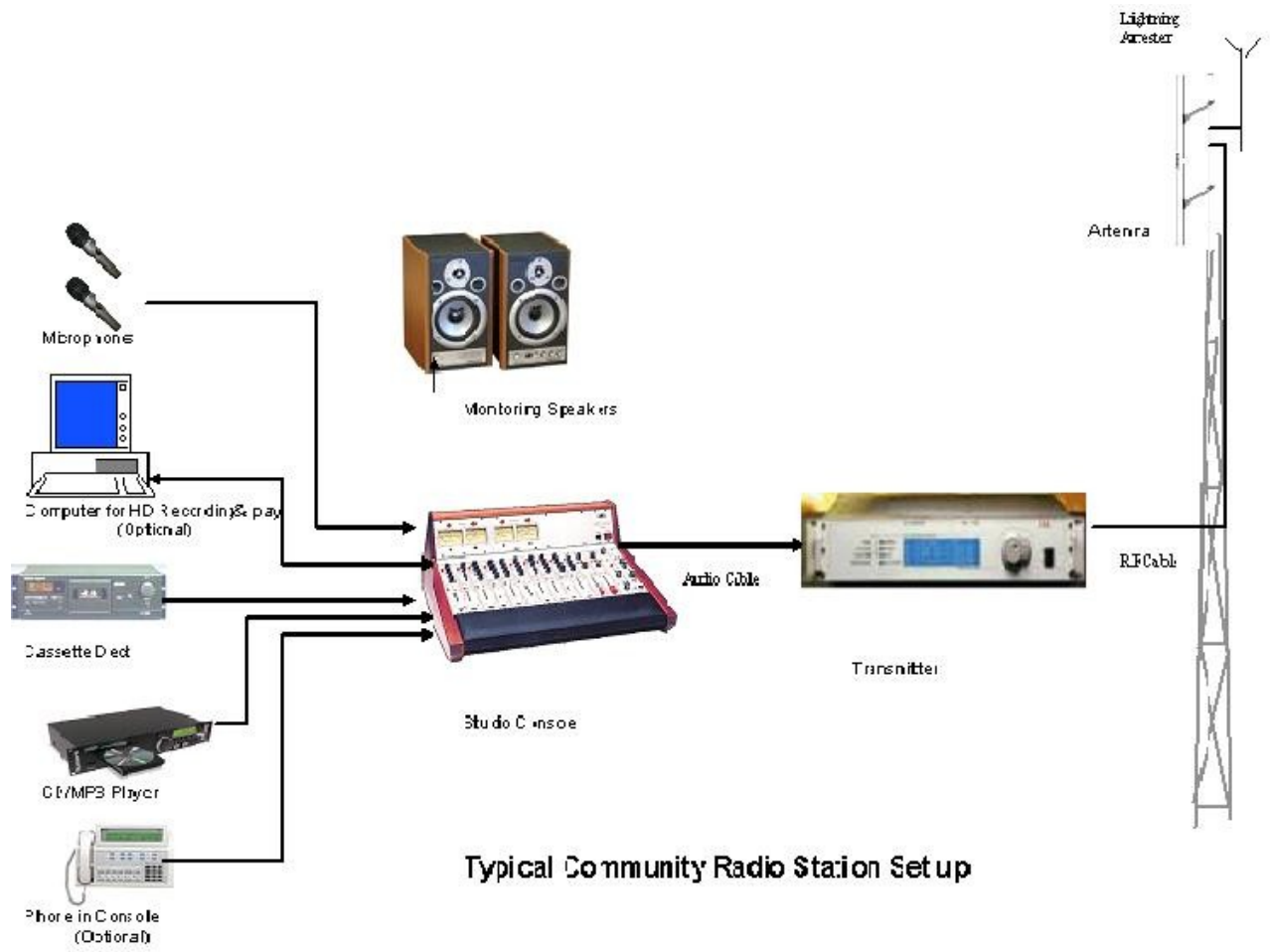
- Numbers of desired studios
- Acoustic treatment
- Choice of acoustic material
- Choice of studio equipment
- Choice of transmitting equipment

# Studio Facilities

- Recording Studio
- Transmission Studio / ROR
- Editing booths
- Three-in-One / Individual Studios
- Acoustic Treatment
- Layout



Typical Studio Lay-Out



**Typical Community Radio Station Setup**

# Audio Equipment

- Specifications – Sensitivity, S/N Ratio, Distortion, Frequency response
- Microphones – Dynamic / Condenser/ Directional patterns
- Console – Mixing / processing
- Recording & playback - Hard Disc based systems/ CTRs (reel machines)/ commercial/ semi-professional /professional CD players /Turntables /cassettes recorders.
- OB equipment –
  - Portable reel machines (NAGRA UPTR-quarter inch tape -expensive and bulky, virtually extinct.
  - Cassette recorder - adequate for interviews, conferences and meetings.
  - Mini disc systems - generally too fragile for field recording.
  - Digital flash memory recorders -Recording systems of the future - no mechanical noise, fast transfer to PC via USB port ,ability to select different recording formats.

# Transmitting Equipment

- Transmitter – Exciter and RF Power Amplifier
- Specifications
  - Mono / Stereo
  - Output power, Frequency range,
  - RF output impedance,
  - Frequency stability, Modulation capability
  - Signal-to-Noise (S/N) ratio
  - Input power / DC operation
  - Ambient temperature range
  - Harmonic distortion, Inter-modulation distortion, Freq. response
- Antenna –
  - radiation patterns, polarization and gain
  - Single bay /two bay dipole / 5/8 wave co-linear vertical antenna

# Possible dangers for transmitters

- Heat and Dust
- Power fluctuations
- RF reflection – Mismatch due to
  - improper antenna
  - improper tuning of the antenna
  - loose connections between the transmitter and antenna
  - Moisture
  - Inbuilt protection (fold back)
- Lightening –
  - lightning arrester
  - low resistance earth pit



# Broad Categorization

- **Campus Radio Station –**
  - Two studios, playback and recording.
  - Professional console & audio equipment
  - One to two computers for recording and editing the audio.
  - Studios - big enough to accommodate small batches of students / training needs.
- **Mid-segment Radio Station**
  - Financially sound NGOs or KVKs etc.
  - Compromise on the number of studios. one studio
  - Compromise on the acoustics material.
  - limited audio production equipments and a semi professional console.
- **Very preliminary set up**
  - just a transmitter & basic audio recording and editing equipment.
  - avoid construction of an acoustically treated studio
  - May be designed to be fully independent from conventional power supply
  - Placement at highest location, achieving significant greater coverage
  - Much less financial implications and power requirements.

# Some Solutions

- Radio in a box project of UNESCO and ABU - ideal for disaster situations, training, capacity building and demonstration purposes.
- Suitcase Radio is a unique complete FM Radio Broadcasting Station contained in a single suitcase.
- BECIL, a Govt. of India enterprise- provides professional solutions
- AIR Resource Cell of Prasar Bharati - turnkey solutions
- NOMAD India Network - low cost solutions.
- World Development Foundation - has set up few CRS for educational institutes ,setting up stations for some KVKs.
- BEL, WEBEL Mediatronics, HCL, APG Broadcast Inf. Ltd - turnkey solutions

# Conclusion/ Challenges

- Technology to be demystified
- Indigenous equipment
- Ruggedness – Multiple, not so trained users
- Continued Technical Support
- Human resource - database of retired broadcast engineers
- Need for concentrated, collective efforts at ground level, regional level and at national level.
- Consortium of Social organizations, developmental agencies, govt. bodies and organizations with broadcast expertise has a greater role to play in promoting CRS.

***Thank You***

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