

To,

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Sir,

**Subject:** Comments on Pre-Consultation Paper on Inputs for Formulation of “National Broadcasting Policy”<sup>1</sup>, dated 21st September 2023

We are submitting our suggestions on the pre-consultation paper referenced above today, the 6<sup>th</sup> November, 2023.

We are both public policy students, enrolled in the GCPP (Graduate Certificate in Public Policy) program of the Takshashila Institution. Shree Kumar is an experienced electronic hardware systems architect, with a degree in Computer Science. Ashwin Prasad has a degree in Electronics and Communication Engineering.

Following are our inputs on this pre-consultation paper. This is our collaborative work, and may please be considered as such.

## Q2. Policy and Regulation

### Subheading (c) Radio Broadcasting

#### Liberalisation of FM Licensing and enabling low power applications

Regulatory and licensing constraints are coming in the way of creating new applications around FM. The government has recently been looking to improve the utility of FM for local use cases. There is a lot of scope for the usage of low powered FM transmitters for entertainment usage in sports fields, malls, and hospitals. Easing licensing norms can potentially open up new areas of application for FM, helping it stay relevant. This will be market driven.

With the popularity of mobile phones, dedicated radio sets have become effectively non-existent. With built-in FM tuners, phones are used to listen to FM broadcasts without relying on mobile networks. Liberalised FM licensing, including allowing low power localised transmitters can work as a natural driver for demand for smartphones with FM radio support.

According to the TRAI Consultation Paper on “Issues Related to Low Power Small Range FM Radio Broadcasting”<sup>2</sup>, a leading chain of multiplexes has been seeking an FM transmission licence to be used commercially for drive-in theatre applications. This is an indicator of the kind of novel applications that can be enabled with the right regulations in place. If successful, this will improve the state’s revenues both from the sale of transmitters as well as licences. At the same time, this provides a host of benefits to the entire ecosystem ranging from distributed job creation to local skill development. The

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<sup>1</sup>[https://traf.gov.in/sites/default/files/CP\\_21092023.pdf](https://traf.gov.in/sites/default/files/CP_21092023.pdf)

<sup>2</sup>[https://traf.gov.in/sites/default/files/CP\\_17042023.pdf](https://traf.gov.in/sites/default/files/CP_17042023.pdf)

greater availability of FM transmitters also leads to increased resilience in the face of inevitable disasters.

### Digital FM Radio

Digital FM Radio can enhance the functionality of FM radio. This adds the ability to transmit text and images, moving beyond pure audio. Potential applications include education, and richer information dissemination in a wide variety of programmes. For example, instead of just listening to a description of the infection, the farmer can now see what the diseased leaf looks like.

Implementing digital FM would require changes to both the transmitter and receiver. This system is backward compatible, so existing FM receivers will continue working. However, existing receivers will not benefit from the digital enablement.

This technology can be explored through its varied applications so that FM Radio stays relevant in the digital age.

## Q2. ix. Role of Broadcasting during Disasters

Our suggestions here revolve around the key role played by FM radio (mainstream technology) and satellite broadcasts for smartphones (upcoming technology) during disasters.

### Disaster management through the lens of smartphones

Smartphones are being used to receive broadcasts of early warning and timely information during disasters. Being an integral part of people's daily lives, they are charged and on the users' person at all times. Smartphone market penetration in India is expected to almost reach 90% by 2030<sup>3</sup>. Communication technologies like internet connectivity, radio and satellite connectivity are layered on the mobile platform.

During calamities, mobile networks serve as a convenient medium of important communications. Emergency broadcasts via mobile networks have been tried out for pre-warning notifications and integrated into aspects such as emergency drills. However, mobile networks are prone to disruption during disasters. Mobile network towers are decentralised and non-standardised. Large geographical areas can get cut off for extended durations when disasters strike. This is where broadcasting plays an essential role to fill the gap. FM Radio and Satellite Broadcasts can serve as alternate reliable backup communication systems.

### Scope of FM radio broadcasting during disasters

FM radio is a popular means for mass communication, owing largely to its wide coverage, portability, low set-up cost and affordability. It is an integral to both the national as well as the state level policies regarding disaster response. The National Policy on Disaster Management, 2005 notes, "For dissemination of advance warning and information through broadcasting mediums such as television and radio shall be used significantly as it has higher geographical reach."<sup>4</sup>

All India Radio's public service broadcasts rely on FM radio for wide reach to the masses. AIR's service comprises 479 stations located across the country, reaching nearly 92% of the country's area and 99.19% of the total population.

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<sup>3</sup><https://www.statista.com/statistics/1229799/india-smartphone-penetration-rate/>

<sup>4</sup><https://www.mha.gov.in/sites/default/files/2022-08/NPDM-101209%5B1%5D.pdf>

During disasters, even in the absence of FM stations, small low power transmitters (<100W) can be set-up quickly. Such transmitters have a circular range of over 20km, which is very useful.

FM radio finds relevance apart from disasters also. "Community radio provides a platform to communities to air local issues... in local languages and dialects, so people are able to relate to it instantly." <sup>5</sup> In general, FM radio promotes information decentralisation, helping cater to the vast diversity of our nation.

Around FM Radio, there exists a strong ecosystem, deep integrations with disaster management protocols and a low cost of implementation. The relative infrastructural simplicity and superiority that FM Radio currently enjoys over other communication technologies is significant. FM radio is an essential public service during disasters.

While all the feature phones have FM radio feature, many new smartphones do not. A significant portion of the upcoming phones do not have FM. This can deny critical real-time information relay by the authorities to the people. The trend of excluding FM radio function from mobile phones has led the Ministry of Electronics and Information Technology to issue an advisory asking manufacturers to include and retain FM radio functionality in their phones.<sup>6</sup> Telecom Regulatory Authority of India also issued recommendations that included mandating FM Radio functionality in phones that have the required hardware, and ensuring compliance by the manufacturers and importers.<sup>7</sup>

### Scope of Satellite Broadcasts during Disasters

Satellite broadcasts can serve as reliable means of timely information dissemination during disasters. Since this method uses satellites, it offers a very high level of resilience. Loss of connectivity due to natural disasters will be minimal.

Satellite Connectivity is an upcoming technology that is being integrated into mobile phones. Continuous improvements in technology have aided miniaturisation of satellite radio transceivers. Solutions have been announced both by Qualcomm and Mediatek, leading core technology suppliers to the smartphone industry.<sup>8,9</sup>

These are cutting edge, premium solutions at the moment. The first consumer applications rolling out are related to emergency SOS and texting. These services are presently expensive but will become cheaper with the influx of private players in the space industry and improvements in the technology.

These satellite connectivity solutions through smartphones do not work in India yet as manufacturers would require a partnership with a licensed satcom provider. This may change as the technology proliferates in the country. Satcom services have already been demonstrated in the country.

### Policy recommendations regarding FM radio and satellite broadcasting technology for disasters

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<sup>5</sup><https://mib.gov.in/broadcasting/community-radio-stations>

<sup>6</sup>[https://www.meity.gov.in/writereaddata/files/Advisory%20on%20inbuilt%20FM%20Radio%20receiver%20feature%20in%20mobile%20phones\\_28.04.2023.pdf](https://www.meity.gov.in/writereaddata/files/Advisory%20on%20inbuilt%20FM%20Radio%20receiver%20feature%20in%20mobile%20phones_28.04.2023.pdf)

<sup>7</sup><https://pib.gov.in/PressReleaseIframePage.aspx?PRID=1954941>

<sup>8</sup><https://corp.mediatek.com/news-events/press-releases/mediatek-to-showcase-its-groundbreaking-satellite-connectivity-technology-at-mwc-2023>.

<sup>9</sup><https://www.qualcomm.com/news/releases/2023/01/qualcomm-introduces-snapdragon-satellite--the-world-s-first-sate>.

The policy can explore ways to ensure the inclusion of FM Radio in all mobile phones sold in India that do not have satellite connectivity. This will establish at least one robust broadcasting medium for information dissemination during disasters.

Govt must be one of the leading adopters of satellite communication, proactively integrating it into disaster related protocols. Standard operating procedures can include satellite broadcasting alongside radio during disasters. This will result in better communication outcomes, potentially saving lives and infrastructure, considerably reducing the economic and social costs incurred during a disaster.

We have done a study into the possible policy actions that can facilitate these outcomes and are happy to share the recommendations if the authority so desires.

### Q3. Suggestions of any other issues which should be considered for formulation of National Broadcasting Policy

Amateur radio operators ('hams') play the critical role of providing communication services during times of natural disasters. Ham radio operators are the only non-governmental people privileged to do private worldwide wireless communication. It is a great hobby offering opportunities for learning, community building (via non-commercial exchange of messages), self-training and wireless experimentation.

The National Communication Standard 2020 for State/UT Police<sup>10</sup> makes the following pertinent points:

- First Responders of State/UTs and Disaster Relief Agencies rely largely on old analog systems for their communication in the field, which are primarily meant for voice communication.
- As the urban population of India has increased, there has been a substantial increase in use of contemporary technology (mostly imported) but many times not suitable to our local requirements. It is also cost intensive.
- There is a lack of indigenous manufacturers of hardware and firmware with heavy dependence on International Suppliers.

Technology evolution towards digitalization is desirable.

While ham radio "is a hobby that refuses to die"<sup>11</sup>, it has enormous ecosystem benefits. There is sufficient need to ensure not just its continuing relevance, but also advancement.

Digital Wireless innovations are an important driver of the economy. A lot of work happening in the area of communications in our country is focussed on the high end (5G, 6G), and rightfully so. However, ham radio remains an affordable means of entry into understanding some of the basics. With the possibility of digital encoding, crucial aspects such as the physical layer become accessible. Advanced, but affordable technologies such as SDR aid in significant skill development around both hardware and software techniques. Ham radio is also an economical path to understanding and practising satellite communications with digital techniques<sup>12</sup>. Such curiosity driven skill development may help plug some of the gaps that are being felt in the Indian innovation ecosystem, especially if aided by catching them young.

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<sup>10</sup>[https://www.mha.gov.in/sites/default/files/2022-12/COMMUNICATIONSTANDARDS\\_25102022\\_2%5B1%5D.pdf](https://www.mha.gov.in/sites/default/files/2022-12/COMMUNICATIONSTANDARDS_25102022_2%5B1%5D.pdf)

<sup>11</sup><https://telanganatoday.com/the-hobby-that-refuses-to-die-ham-radio>

<sup>12</sup><https://amsatindia.org/>

The regulations around ham radio are set to evolve globally. The US FCCs recent fact sheet, "Elimination of the Baud Rate Limitation in Applicable Amateur Radio Bands"<sup>13</sup> has some interesting proposals:

1. Remove limitations on the baud rate applicable to data emissions in amateur bands below 29.7 MHz
2. Implement a 2.8 kHz bandwidth limitation in place of the baud rate limitation in same bands

Further, FCC will be seeking appropriate comments on bandwidth limitations for the VHF and UHF bands, with a proposal to remove the baud rate limitations for those bands as well. These proposals are expected to significantly benefit amateur radio for the following reasons:

1. The amateur radio community is often unnecessarily hindered by the baud rate limitations in the rules. Higher baud rate can play a vital role in emergency response communications.
2. Faster rates promote more efficient use of the radio spectrum currently allocated for amateur services
3. Incentivizes innovation by allowing more data to be transmitted within each signal without increasing bandwidth utilisation.

To ensure Indian hams do not fall behind, we need to ensure that our regulations evolve with technological progress, by removing existing barriers, thus positively aiding innovations. HAM radio can be included as an optional subject in the curriculum at the school level. This would promote skill development in a crucial area of national importance.

We recommend consultations be held with regard to changes required for amateur radio broadcasting with amateur radio operators, associations, academia and any other concerned parties. Based on the consultations, suitable recommendations may be made to the Wireless Planning Commission (WPC).

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<sup>13</sup><https://docs.fcc.gov/public/attachments/DOC-397992A1.pdf>