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NO. 41/02/2009-NPM/BPR&D
Government of India
Ministry of Home Affairs
Bureau of Police Research & Development

Block No.11, 4th Floor,
CGO Complex, Lodhi Road,
New Delhi-110 003,
Dated: 06 May, 2013
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OFFICE MEMORANDUM

Sub:- Reference from Secretary, TRAI regarding comments on Consultation Paper on "Universal Single Number Based Integrated Emergency Communication and Response System (IECRS)"

- 1 Reference MHA OM No. 25019/17/2013-PM-II dated 05 April, 2013.
- 2 Reply on issues for consultation on Universal Single Number based Integrated Emergency Communication Response System (IECRS) circulated by Telecom Regulatory Authority of India (TRAI) is enclosed herewith.


(Sultan Ahmad) 6/5/2013
SP/NPM
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Encls: As above.

Shri Vinod Kumar,
Under Secretary (PM-II)
Min of Home Affairs
Jaisalmer House, New Delhi.

Ministry of Home Affairs

PM-II Section

Jaisalmer House, 26 Man Singh Road,
New Delhi-110011.

Subject: TRAI's Consultation Paper on "Universal Single Number Based Integrated Emergency Communication and Response System (IECRS)".

Telecom Regulatory Authority of India may please refer to their communication no. 102-10/2012-NSL-II dated 20th March, 2013 on the subject noted above.

2. Comments received from National Police Mission (NPM), Bureau of Police Research & Development (BPR&D) on the issue is enclosed herewith.


(Vinod Kumar)

Under Secretary (PM-II)

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Secretary (Shri Rajeev Agrawal), TRAI, Mahanagar Doorsanchar Bhawan,
Jawahar Lal Nehru Marg, (Old Minto Road), New Dr. Zakir Husain College,
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MHA I.D. No. 25019/17/2013-PM-II

Dated: 16/05/2013

POINTWISE RESPONSE ON ISSUES FOR CONSULTATION ON UNIVERSAL SINGLE NUMBER BASED INTEGRATED EMERGENCY COMMUNICATION RESPONSE SYSTEM CIRCULATED BY TELECOM REGULATORY AUTHORITY OF INDIA (TRAI)

1. *What are the types of emergency services that should be made available through single emergency number?*

First responder services like POLICE, FIRE, MEDICAL, ~~HAZMAT~~ should be the backbone emergency services available through single emergency number. Services like Women and Child Help line , Senior Citizen Help line etc could be routed and dispatched through primary service like POLICE. Similarly higher order emergency services like Search and Rescue, Disaster Management services can be dovetailed with basic services or special hierarchical protocols could be worked out.

2. *What universal number (e.g. 100,108 etc) should be assigned for the integrated emergency communication and response system in India?*

No. 100 is already known to the common citizen as an emergency number. It would be advisable to take advantage of this reach.

3. *Should there be primary / secondary access numbers defined for the integrated emergency communication and response system in India? If yes, what should these numbers be?*

Ideally only one Primary access number should be there. However technical issues regarding emergency number of mobile phones can be studied by an expert group.

4. *For implementing single number based Integrated Emergency Communication and Response System in India,*

should the database with information of telephone users be maintained by the individual service providers or should there be a centralized database?

It is recommended that our country should straight away go for Next Generation system like NG 911. In the Next Generation system the Emergency Call carries the Subscriber Number/info and the Location information. Emergency call routing is done by using Location Verification Function(LVF) and Emergency Call Routing Function (ECRF) which are GIS based and are not dependent any more on traditional ANI/ALI and MSAG database. For this purpose databases like LVF and ECRF will be required. NG 911 standard prescribes a process and system for making such pre requisite data bases centrally available.

- 5. In case of centralized database which agency (one of the designated telecom service provider, a Central Government department or a designated third party) should be responsible for maintaining the database?*

Standards like NG 911 may be referred to for this purpose.

- 6. What are the technical issues involved in transfer of location of a mobile user in real time?*

A range of technical issues are involved depending upon whether the hand set is location capable or incapable and what location acquisition technology is used by the Access Infrastructure Provider and Communication Infrastructure Provider. Location by Value or Location by Reference which can be translated by a Location Information Server (LIS) carried on the call in PIDF-LO structure is used for routing the call to geographically and functionally appropriate PSAP. Hence Location Acquisition is a mission critical activity in next generation systems. The same location information is used for Dispatch functions by the Responder agency. Protocols related to transfer of location information for calls made

by nomadic caller are available in NG 911 standards which may be referred to for further details.

- 7. *What accuracy should be mandated for the location information to be provided by the mobile service provider?*

Federal Communications Commission (FCC) Phase II E-911 rules require wireless service providers to provide more precise location information to PSAPs, specifically the latitude and longitude of the caller. This information must be accurate to within 50 to 300 m depending upon the type of location technology used. We can think of similar standards. Deployment of higher accuracy location acquisition technology by service providers should be given incentives.

- 8. *Should emergency number access be allowed from inactive SIMs or handsets without SIMs? Please justify your answer.*

It should not be allowed. This would be very prone to misuse for criminal activities particularly in Indian context.

- 9. *Should emergency access be allowed through SMS or email or data based calls? If yes, what will be the challenges in its implementation?*

India must go for Next Generation Standards which basically means that emergency calls can be made from Any Where, Any Time and from Any Device. So a range of communication devices (Land lines, Cell Phones, VoIP phones, IP based UAs, Alarms and Devices of all kinds) should be able to call the single emergency number by both voice calls and data calls(Text, Instant Message, Photo, Video etc.)

- 10. *Is it technically possible to get Location information in case of SMS or data based calls on real time basis? If yes, please elaborate the process and technical challenges if any.*

There are several technical challenges but Standards like NG 911 define very clearly the technological frame work for this. NG 911 standards documents could be referred to for details.

11. *How to build redundancy in operations of Centralized response centers or PSAPs as they may be vulnerable to attack - both Physical and Application software related (Virus, Malware, denial of service, hacking) or to Network failures or Congestion i.e. Call Overload?*

It is reiterated that we must aspire for Next Generation standards like NG 911 which is based on ESi Net of IP based architecture with proper Border Control Functions and Fire Walls. IP based Emergency Net is inherently more resilient and has disaster recovery features. In case of call overload on a Public Safety Answering Point (PSAP) calls can get automatically routed to alternate PSAPs which are all ultimately interconnected on ESi Net.

12. *Should all the calls made to universal emergency number be prioritized over normal calls? Please justify your answer.*

Emergency handling by nature is a mission critical activity and Call made to Universal Emergency Number must be prioritized over normal calls when they are in their respective access networks which then deliver the Call to the ESi Net using the Location Verification Function (LVF) and Emergency Call Routing Function (ECRF) to route it to appropriate PSAP. The ESi Net is a dedicated integrated emergency communication network and once the emergency call is on ESi Net it does not have to compete with normal call traffic for priority.

13. *What legal/penal provisions should be made to deal with the problem of Hoax or fake calls to emergency numbers?*

Strong punitive measures should be put in place for a hoax or fake call because it can deny emergency service to a legitimate caller and divert precious emergency response resources. However quality of evidence required for establishing a call as fake or hoax should be fairly tight. It has been the experience of even very

developed countries that a large percentage of calls could be just “probing” calls where a concerned user checks out if the system would work if the need ever arises. Such problem is tackled more by educational campaign and less by penal provisions.

- 14. *How should the funding requirement be met for costs involved in implementation of IECRS? Should the cost be entirely borne by Central/State Governments or are there other possible ways to meet the funding requirements?*

There could be a range of funding models. Subscribers may be quite willing to pay a small fee for availing high quality emergency service. A registered subscriber could be also offered value added services of emergency notifications.

- 15. *Should Key Performance Indicators (KPIs) related to response time be mandated for PSAPs? If yes, what should be the KPIs? Please justify your suggestions.*

This project is all about a promise of an Assured Quality of Service to Citizen's Call for Service(CFS). This cannot be achieved if there are no KPIs and Service Level Metrics both at PSAP level and also at the Response end. Normally for PSAPs there would be Quality of Service standards for Call Taking response time. At the Dispatch and Response end the quality of service is a more complex issue and critically depends upon dispatch able field resources. However it would be necessary to have KPIs there as well.

- 16. *Should use of language translation services be mandated for PSAPs?*

Language translation service would be necessary for a lingually diverse country like India. If an ESi Net based Next Generation platform is implemented country wide such a collaboration in the form of mutual aid between PSAPs of different states becomes very easy to organize. Even local translators can be easily conference connected to an ongoing call for service on need basis.

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17. *In your opinion, what issues related to interconnectivity and IUC may come up in implementation of IECRS in India? What are the suggested approaches to deal with them?*

The suggested standard for IECRS in India should be Next Generation based on ESi Net architecture. In this architecture calls are not routed to a PSAP through one service provider. All service providers which provide the access network connect to ESi Net and similarly all PSAPs connect to the ESi Net through a Border Control Function (BCF). Calls can be routed from any service provider to an appropriate PSAP located anywhere through LVF/ECRF function.

18. *Should a separate emergency number for differently able persons be mandated in India? How the use of this number be administered?*

There is no need as such for a separate emergency number for differently abled persons. However if the technical requirements of any special purpose device that differently abled persons use for emergency calling imposes this requirement of a specific number then it could be considered.

19. *In your opinion, apart from the issues discussed in this consultation paper, are there any other technical, commercial or regulatory issues that may be involved in implementation of IECRS in India? Please elaborate.*

Emergency Management on the whole and Integrated Emergency Communication Response System involves very significant issues of Policy and Governance which are much broader in dimension than the limited "telecommunications platform" which TRAI is mandated to address. For example, there would be several issues involved related to use of GIS technology in call routing and also public safety dispatching and these need to be addressed at policy level alongside. Also standardization of design, equipment and standard operating procedures of PSAPs must be simultaneously addressed. Equally important would be to lay a solid nationwide foundation for inter agency collaboration in Incident Command by looking at, at this very stage, scope for a standard framework for Computer Assisted Dispatch, Automatic Resource

Tracking and Interoperable Tactical Communication between emergency services. It is hoped that this remarkable initiative of TRAI will get escalated into a more comprehensive discussion encompassing all the related aspects of this project.