



## **UNIVERSAL SINGLE NUMBER BASED INTEGRATED EMERGENCY COMMUNICATION AND RESPONSE SYSTEM**

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

***Span's response:***

*Police, Ambulance, Fire, National Disaster Management Authority (NDMA), Child and Women Helplines.*

*Relevant NGOs should also be informed at a later stage to help the affected. A web portal should be created for IECRS where different emergency response service providers like Hospitals, Doctors, Police Stations, NGOs, etc. can register to be notified incase of emergency. On receipt of such request from an Emergency Service Provider, a thorough process should be done to validate their capabilities and register them only thereafter.*

*The system should have no limit in terms of number of agencies to be provisioned.*

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

***Span's response:***

*Since public awareness in India is high for 100 as an emergency number, this should be assigned nationally for the integrated emergency communication and response system in India.*

- 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?**

***Span's response:***

*On account of Indian public's awareness, 100 should be the primary access number. All other numbers prevalent today should exist as secondary numbers where calls should be forwarded to 100 number only. This should be followed till the time everybody is accustomed to using a single emergency number.*

*In view of large number of foreign visitors coming to India some of whom often seek emergency help, so as to bring India in sync with global developments in this area, ITU recommendations should be followed for selecting a globally harmonized national secondary alternative emergency access number.*



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?

**Span's response:**

*Since Mobile Number Portability (MNP) is now functioning all across India, its database should be queried for each distress call originating from a mobile phone. A similar database giving addresses of fixed line users is already available with individual fixed line service providers.*

*PSAP should be able to look up such databases – both for mobile and fixed line to get the address of every distress caller.*

*Making a copy of such centralized database using such existing centralized database would be ideal instead of duplicating the effort to maintain these databases individually with all the operators. This centralized copy should be updated in every 24 hours.*

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?

**Span's response:**

*An organization needs to be created to take the responsibility of emergency services similar to MNP. This organization should be a Public Private Partnership (PPP). The representative in this Public Private Partnership should be MHA, Ministry of Defence, Ministry of Health and Family Welfare, Ministry of Women and Child Development, DOT and vendors who have experience of deploying and running managed services for such critical infrastructure.*

*We would prefer to leave the databases for mobile users to be maintained by the two MNP providers in India and the databases for fixed line users with the respective fixed line service providers.*

*A copy of this centralized database should be maintained by the Emergency Service Provider. PSAP servicing distress calls should be allowed look-up access to all such databases to automatically get address/location on their computer screens of each distress caller.*

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

**Span's response:**

*It would be preferable to have a centralized location based system independent of the operators. Following are some reasons:*



1. *Accuracy of location will be dependent on different systems deployed by different operators. It will be difficult for police to locate a caller unless Police knows to find a caller in a 50 meter range or 500 meter range.*
2. *Basis of purchasing location based system for operators is only regulatory compliance at lowest cost and not meeting security requirements.*
3. *Capacities planned in the location based system by operators may not be sufficient to handle location queries from Emergency Response system. If this is the case there may be many failed location calculation requests at the end leading to failure of emergency response.*

*There are no technical issues involved in transfer of location of mobile user in real time provided:*

- a) *PSAP is able to query the centralised database and link the distress caller's mobile to the operator*
- b) *PSAP has IP connectivity available to each mobile operator's location server.*
- c) *Accuracy of location will be dependent on different LBS systems deployed by the mobile operators.*

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

***Span's response:***

*To begin with, accuracy could be provided using Enhanced Cell ID (ECID). But as all mobile operators are required to comply with DOT's amendment to license conditions Dtd.31<sup>st</sup> May, 2011, at a later stage finally accuracy should be provided by mobile operator complying with it.*

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

***Span's response:***

*Emergency number access should be allowed from inactive SIMs or handsets without SIMs. However there could be many prank/hoax/fake calls also made to emergency numbers, therefore in such a case a heavy penalty with imprisonment should be applied to hoax callers. In such scenarios determining the identity of such a caller may be difficult due to a temporary mobile number that is generated with respect to the IMEI of the device. In such scenarios the IMEI of the hoax caller should be blacklisted to work with no Indian SIM card thereby making the device redundant.*

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



**Span's response:**

*Emergency access should be allowed through SMS or email or data based calls to all. Data calls like VoLTE can be supported however services such as Skype, Viber, etc. may not comply because they are hosted outside India and unless they comply to integrate with Indian emergency services it may not be possible. In addition Indian subscribers use foreign VoIP service providers to make cheap international calls such numbers may not be able to connect an emergency call to Indian PSAP.*

*The only challenge could be to understand the criticality of emergency on the basis of SMS or email or web based may not be sufficient at all times. At the same time this will allow deaf and mute to also access emergency services. However, in case of integrating data services for emergency a database of Internet connections with a look up at the operator's AAA server needs to be also established - to find identity and location of the distressed caller.*

**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.**

**Span's response:**

*Location information can be gathered in real time basis from any mobile that is switched on. Thus any service running from a mobile phone that generates signaling viz.SMS, can be linked to location co-ordinates.*

**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?**

**Span's response:**

*India being a large country with many spoken languages, 2 geographically diverse PSAPs should be established at each state level/circle. The 2 PSAPs will provide load balancing and redundancy.*

*A centralized emergency call management system should monitor the functioning of all the local centers. The centralized emergency call management system should be load balanced and geographically redundant in two zones. Call overloads from local center should overflow and be passed on to the nearest local center failing which to central emergency call management system.*

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

**Span's response:**

*Yes, all emergency calls should be prioritized over normal calls since delayed distress calls could lead to loss of life that may be facing any danger.*



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

***Span's response:***

*A proper definition of hoax calls needs to be framed. Determining and categorizing a call as hoax needs to have a defined process. We would like to define hoax calls as those where the content of the call is obscene, abusive, etc. or are not related to emergency however with the exception of providing the caller warning for calls related to civic amenities like water logging, broken roads, etc. Incase a caller repeats such a call after warning such caller will be treated as a hoax call.*

*All hoax or fake calls to emergency numbers should face an exemplary fine and/or imprisonment. Calls made due to genuine error, should be exempted from such fine.*

**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?**

***Span's response:***

*Providing timely and reliable emergency services is an obligation that only the Government is in a position to fulfill towards society. IECRS should ideally be funded from the already accumulated USO fund now largely lying unused with the Central Government.*

*Alternatively, it could be funded based on a monthly charge viz. Re. 2/- levied as a security charge on each subscriber. India has 600 million active mobile users and 40 million fixed line users. This will amount to a monthly collection of Rs. 128 crores every month. This should be sufficient to run the operations across India.*

**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.**

***Span's response:***

*KPIs need to be measured in 3 aspects average time to respond to a call from the beginning of ringing, average time to dispatch response team from the beginning of the call and average call duration.*

*KPIs related to response time should be mandated for PSAPs, viz:*

- 100% distress calls must be attended to within 20 seconds from the beginning of call ringing.*



- 90% distress calls must be attended to within 10 seconds from the beginning of call ringing.
- Average time to dispatch response team should be less than 50 seconds
- Average Call Duration should be less than 90 seconds

*The above KPIs are necessary since a distress caller needs emergency attention where delay could mean life or death.*

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

***Span's response:***

*Each PSAP should have each agent speaking at least 3 languages - Hindi, English and popular local language. In case of a different language translation challenge, such language help can be raised from a roster through conference calls by the PSAP operator.*

*Case 1: Call originating in Tamil Nadu from Tamil Nadu number should by default be addressed in local language i.e. Tamil.*

*Case 2: Call originating in Tamil Nadu from a Delhi number should be transferred to Delhi PSAP however Delhi PSAP should be able to inform and dispatch Tamil Nadu agencies from the same emergency response system.*

**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?**

***Span's response:***

*IECRS should have a redundant IP link to both the MNP providers and each telecom operator (mobile and fixed) with right to look up subscribers for their address and their location server for distress caller's geographical co-ordinates.*

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

***Span's response:***

*No. Instead, a registration process should be followed for such persons to ensure that they get priority of attention.*



**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.**

***Span's response:***

*See Attached "Need of the Hour – Universal Single Number for All Distressed Calls".*





## **NEED OF THE HOUR UNIVERSAL SINGLE NUMBER FOR DISTRESS CALLS**

The Preamble to the Indian constitution – right in the beginning – commits to securing all its citizens. The Government has been working in this direction but all its efforts so far lack coordination. Computerization and the related developments in communications now makes it necessary to adopt a new thinking that could bring out a more coordinated and prompt response to any emergency situation.

So far distress call handling has not been made into an integrated service but requires the sufferer to remember and call different phone numbers for each type of service required viz. law & order (100), fire (101), ambulance (102), women safety (181), disaster recovery (108), etc. In addition, hospitals have their own set of emergency numbers. A person in distress cannot be expected to remember such specific phone numbers during an emergency. Instead, time has come to ensure that any distress caller now should make only a single call leading to an integrated and well co-ordinated response from a system and organization that takes into account the nature of distress and provides an appropriate quick response.

This requires deploying a modern communication network that facilitates a quick and suitable response from the relevant agency to the situation that the distress caller is faced with. Such a system should be easily accessible and well staffed to ensure that the affected person gets prompt help.

It is laudable that TRAI has taken a step in this direction and circulated a Consultation Paper on 15<sup>th</sup> March, 2013 under the heading: *“Universal Single Number Based Integrated Emergency Communication and Response System (IECRS).”*

It has become necessary for India to follow the successful emergency number response systems deployed in Europe, USA, Canada and now also deployed by many other developing countries in the world viz. Malaysia, Philippines. This involves all distress calls to be handled by a call center called Public Safety Answering Point (PSAP) which is connected to the database of the fixed line subscribers and in case of mobile networks: to the database of the MNP service provider and the location servers of each of the mobile operators. The PSAP has all the relevant software for call management and fixing of location of the distress caller on a digital map and is staffed with the appropriate personnel from the various services that are needed to address any emergency situation. Such personnel are well trained to seek appropriate information about the situation from the caller and based computerized inputs gathered during the call from the relevant servers, is able pinpointing the location of the distress caller. The PSAP then routes the call to the nearest emergency response center whose services are required. Accordingly, a well-coordinated response process is promptly set in motion to suitably address the situation.

Such a PSAP based centralized emergency response system necessarily has to have redundant connectivity to all the telecom service providers so as to gather the identity and the location information (including latitude and longitude) of the distress caller. At the same time, the





PSAP has also to be connected to all the emergency service providers in the affected area so that the burden of calling the appropriate response team shifts from the caller to PSAP operator.

The success of deploying such a system is largely depending on getting accurate address / location inputs of the distress caller from the relevant fixed / mobile operator's network depending on what network is being used by the caller.

While an integrated Public Number Database exists for the mobile operators with the MNP service providers in India, it needs to be either put together for the fixed line operators or these operators need allow the PSAP to query it for getting address of the caller.

It is the gathering of the location details of the distress caller that is the bigger technical challenge. Unfortunately, mobile operators in India are presently not geared to allow the PSAP to query their location server for obtaining accurate location co-ordinates of the distress caller. Despite TRAI's notification Dtd. 31/5/2011 for providing accuracy of location, this matter awaits mobile operators compliance.

Here it would be relevant to recall how USA has gone about achieving compliance to their E911 regulation for fixing location of every distress call. I quote FCC on this:

*"Enhanced 911 or E911 service enables wireless telephones used to dial 911 to automatically transmit the caller's geographic position to emergency responders. Wireless service providers are improving their networks to provide E911 capability according to a schedule established by the FCC. The specific requirements and schedules can be found on the [FCC website](#). Wireless service providers may choose to pass their costs of providing E911 service on to their customers and this charge may be described as an E911 charge on your wireless telephone bill."*

Providing timely and reliable emergency services is an obligation that only the Government is in a position to fulfill towards society. IECRS should ideally be funded from the already accumulated USO fund now largely lying unused with the Central Government. Since USO funds are collected by the Government to provide benefits of communication to its citizens, it can best be put to use for deploying IECRS across India in a time bound manner.

Alternatively, it could be funded based on a monthly charge viz. Re. 2/- levied as a security charge on each subscriber. India has 600 million active mobile users and 40 million fixed line users. This will amount to a monthly collection of Rs. 128 crores every month. This should be sufficient to run the operations across India.

India being a large country with many spoken languages, two PSAPs should be established at geographically diverse places in each state level/circle. The 2 PSAPs will provide load balancing and geographical redundancy. Each call receiving agent should speak at least 3 languages - Hindi, English and popular local language. In case of a different language translation challenge, such language help can be raised from a roster through conference calls by the PSAP operator. Thus:

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*Case 2: Call originating in Tamil Nadu from a Delhi number should be transferred to Delhi PSAP however Delhi PSAP should be able to inform and dispatch Tamil Nadu agencies from the same emergency response system.*

A central emergency call management system should monitor the functioning of all the local centers. The centralized emergency call management system should be load balanced and geographically redundant in two zones. Call overloads from local center should overflow and be passed on to the nearest local center failing which to a central response center.

With our large geography and large population, assuring the masses of prompt response in all crisis situations from the various emergency services, can shore up their confidence in the functioning of the Government machinery. Thus, locating all distress calls is a nationally felt need that should not be delayed any longer.