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ITU-APT Foundation of India (IAFI) Comments on TRAI Consultation Paper on “Making ICT Accessible for Persons with Disabilities”

Introduction

At the outset, ITU-APT Foundation of India ('IAFI') would like to take this opportunity to thank the Telecom Regulatory Authority of India for taking the initiative to release a consultation on an issue that is of vital national and public interest. A quote that is often cited is that “*For most people, technology makes things easier. For people with disabilities, technology makes things possible*”. Given the developments in information and communications technology ('ICT'), it has become increasingly important to ensure that persons with disabilities ('PWDs') are provided an equal opportunity to access and derive benefits therefrom.

Today, it is estimated that close to 15% of the world's population lives with some form of disability. Within India, the 2011 census estimated that there were 2.68 crore PWDs in India – a 22% increase over the same metric from 2011. This figure is likely to have increased to date.

At a high level, the effects of lack of access to ICT for this section of society are two-fold – at the outset, PWDs sometimes cannot derive the benefits and gains to quality of life that ICTs have enabled. In addition, PWDs sometimes face disadvantages when trying to lead more mainstream lives and can have difficulty realising certain rights that others may take for granted. In social, economic, and cultural spheres, PWDs may not be able to compete equally, and this results in a development model which is not equitable or inclusive. Within this context, policy initiatives around ICT and PWDs must focus on twin objectives:

- (i) The encouragement of development of ICTs which assist PWDs to compete equally, and fully realise social, economic, and human rights entitlements (**Equalisation**); and
- (ii) The encouragement of development of ICTs which afford PWDs the same benefits and quality of life improvements that others have been able to leverage.

However, equally important are issues relating to implementation, operationalisation, and capacity building. A 2016 Background Paper of the World Bank on “Bridging the Disability Divide through Digital Technologies”¹ also notes:

However, the advancements in technology are insufficient by themselves to bridge the gaps in the socioeconomic inclusion of persons with disabilities. The adaptation, operationalization, and implementation of ICT for inclusive development remains dependent on others factors within the ecosystem (Samant, Matter, and Harniss 2012). Existing evidence shows that the success of using the internet and ICT for the inclusion of persons with disabilities is heavily impacted by stakeholders' knowledge and awareness of the ICT solutions available, laws and policies, and the capacity of various stakeholders to support accessible ICT services (Samant, Matter, and Harniss 2012). In fact, the use of the internet and ICT can widen the disparities between

¹<http://pubdocs.worldbank.org/en/123481461249337484/WDR16-BP-Bridging-the-Disability-Divide-through-Digital-Technology-RAJA.pdf>



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persons with and without disabilities if they are not designed to be accessible and inclusive.

The government of India's Digital India initiative has carried the message of digital inclusion and development for all. A key part of any initiative must centre on policy and schemes which leverage this momentum for inclusive growth and improving connectivity. The current emphasis on encouraging innovation and entrepreneurship must be leveraged in a manner that the interests of those with disabilities are also recognised. As different enterprises adopt different business models and strategies, a one-size-fits-all approach is not appropriate and is not likely to benefit PWDs. In addition, policy initiatives must be guided by the objectives of improving internet penetration and connectivity.

Mandating specific solutions or modifications through statute or regulation is likely to stymie innovative solutions to issues affecting PWD. Instead, the government must focus on collaborating with industry and civil society to craft policy which provides principle-level guidance to encourage research, innovation, and capacity building which benefits PWD. In this regard, reference may be made to the Central Sector Scheme on "Research on disability related technology, products, and issues" which provides research grants and support to projects aimed at improving the quality of life of PWDs through targeted research and development activities.²

In addition to dedicated schemes, existing government schemes like Start Up India and Make in India are potential vehicles through which such initiatives may be channelled. Alongside capacity building and awareness efforts, the government must encourage incentive-led innovation which benefits all sections of society. Only if innovation and growth is truly inclusive, will the true vision of Digital India be realised.

With these broad principles in mind, we have provided our responses to the specific queries as below.

1. Which are the disabilities with specific accessibility requirement, other than those mentioned in para 2.3 of the Consultation Paper that requires consideration for preparing a framework?

Response:

We are of the view that the disabilities listed in para 2.3 of the Consultation Paper are sufficiently broad to account for the various types of disabilities that individuals may be afflicted with. However, we urge TRAI to ensure that para 2.3 covers not only disabilities acquired at birth, but also disabilities which are acquired later in life (whether naturally, or on account of an accident etc.). In addition, we recommend that the following clarifications be inserted:

- (a) a specific reference be made to speech-related impairments which affect articulation and speech patterns; and
- (b) a specific reference be made to disabilities involving lack or loss of certain limbs. Currently the Consultation Paper only makes general reference to 'cognition' and 'dexterity' linked disabilities.

²Ministry of Disability Affairs at http://disabilityaffairs.gov.in/upload/uploadfiles/files/scheme_R_D.pdf



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This will ensure the widest possible coverage of TRAI's recommendations. As a critical component of most policy initiatives will be the definition of 'disability', we recommend that TRAI define the term in an inclusive manner without listing specific types of disabilities or impairments. In this regard, reference may be made to the Rights of Persons with Disabilities Act, 2016 ('RPD Act') which *inter alia* uses the following definitions:

(s) "person with disability" means a person with long term physical, mental, intellectual or sensory impairment which, in interaction with barriers, hinders his full and effective participation in society equally with others;

(c) "barrier" means any factor including communicational, cultural, economic, environmental, institutional, political, social, attitudinal or structural factors which hampers the full and effective participation of persons with disabilities in society;

A similar approach may be adopted in TRAI's recommendations in order to ensure maximum coverage and inclusion.

2. Apart from the challenges enumerated in para 2.3 of the Consultation Paper, what other challenges do PWDs face while accessing telecommunication and broadcasting services?

Response:

As discussed in our response above, IAFI supports a broad and inclusive definitional approach to disabilities as well as the inequalities and disadvantages faced by persons with disabilities. In line with the approach followed by the RPD Act, we recommend that TRAI adopt a principle-based approach which does not focus on specific challenges faced by PWDs. Instead, any factor which hampers effective societal participation must be covered.

Under Section 2(c) of the RPD Act, "barrier" means *any factor* including communicational, cultural, economic, environmental, institutional, political, social, attitudinal or structural factors which hampers the full and effective participation of PWDs in society. TRAI should either adopt this approach or an analogous approach which focusses on principles.

Within this context, additional challenges for PWDs not mentioned in para 2.3 of the Consultation Paper include:

- (i) Difficulties in accessing customer services, and complaints due to *speech* impairments.
- (ii) Difficulties in authentication and identity verification, including with specific reference to biometric authentication such as iris scanning and/or fingerprinting.

3. In your opinion, what are the reasons for the desired benefits of ICT (telecom and broadcasting) not reaching the PWDs despite several policy measures and scheme being implemented?

Response:

There are several reasons why the desired benefits of ICT do not reach PWDs despite several policy measures and schemes being conceptualised. In our view, the primary reasons for this have been:



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- **Poor penetration of connectivity and internet:** Even where accessible online services and content exists, the low level of general internet penetration in India has meant that PWDs do not have access to connectivity. This is as the barriers to receive connectivity – often related to the challenges discussed in para 2.3 of the Consultation Paper, and the responses above – are more pronounced in the cases of PWDs. The socio-economic condition of PWDs is more vulnerable than other classes.³
- **Lack of affordability:** Despite the increase in number of accessible ICTs, economic factors have meant that most PWDs cannot use the same. Even where policies and schemes exist, their effects have not always trickled down to lead to more affordable accessible ICT solutions. This reduced spending capacity is influenced by the resources that PWDs may have to divert to other costs including healthcare and specialised care.
- **Lack of awareness and sensitivity:** There is an abject lack of awareness on PWDs issues – firstly, regarding the problems faced by PWDs in relation to ICT; and secondly, regarding the availability of schemes and programs offered by the government and private sector entities to PWDs. There is a critical need to launch targeted awareness and PR campaigns aimed at educating society at large of the problems faced by PWDs in ICT. These campaigns must also focus on alleviating the stigma associated with disability in society, and aim to bring about a cultural change in how society views PWDs and their needs.
- **Lack of PPP and coordination:** As nearly all consumer ICTs are produced by private sector industry, solutions must aim to bring together various stakeholders. There is a need for greater coordination and private-public partnerships in addressing PWDs-related issues.
- **Lack of monitoring, supervision, and enforcement:** There is a need for regular monitoring of schemes and programs to ensure that (a) that schemes are still relevant and audited frequently, (b) schemes are reaching intended beneficiaries without leakages, and (c) new schemes and programs are being constantly considered, discussed, and evolved.

Please note that there are several other reasons for the disconnect between PWDs-related policies and their beneficiaries. We have highlighted the most significant in this response.

4. What additional or corrective measures can be taken by the Government to enable better access to telecommunication and broadcasting services and devices to PWDs? Please give a rationale for your response.

Response:

Some additional measures that may be taken by the Government to improve access to, and accessibility of telecommunication and broadcasting services include as follows:

- a. **Incentives and Subsidies:** The Government must implement initiatives which lead to increased affordability of ICT devices and services. While direct subsidies may be

³Nidhiya Menon, Susan Parish and Roderick Rose, The “State” of Persons with Disabilities in India, at <https://pdfs.semanticscholar.org/8f82/72e205a5c0c9e1939c195eb9e2666bbcf1cd.pdf>



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unsustainable, the government may consider other incentives including waiver of fees, tax breaks, preference in government procurement, and similar benefits for ICT manufactures and service providers innovating for PWDs.⁴

- b. **Encouraging Industry Collaborations:** Given the scale of the difficulties faced by PWDs in India, no one stakeholder can effectively solve or make meaningful progress on the issue. Government should look to enter into industry collaborations with private sector to jointly evolve solutions. For instance, the government may constitute a voluntary public-private working group to evaluate possible policy interventions for making ICT more accessible. Many such collaborations have already borne fruit and increased general accessibility. Google's Railtel collaboration is such an example and is estimated to have provided internet access to several million first-time users.
- c. **Enforcement of internal policies:** In addition to the above, the government should ensure that all public information (as defined under the RTI Act) and resources are made accessible to PWDs. This includes official government documents, laws, policies, and schemes. In addition, government schemes like DBTs and Aadhaar must be audited to ensure that they are PWDs-friendly.

5. Apart from the measures suggested by ITU, what additional measures can be taken by the TSPs and equipment vendors/suppliers and other stakeholders to address the challenges faced by PWDs while accessing telecom and broadcasting services?

Response:

The ITU's recommended measures are broad and cover most general measures that can be deployed to address the challenges faced by PWDs while accessing telecom and broadcasting services. In addition, IAFI recommends that modern and evolving technological paradigms be used for the same purpose. Research in areas including artificial intelligence, machine learning, and virtual reality can aid many PWDs. While general research in this area is unfolding at breakneck pace, it must also be ensured that such research accounts for the interests of PWDs.

There are many existing instances where industry has implemented such solutions. For instance, artificial intelligence-based software can be dynamically programmed as per the varying needs of PWDs. That way, what would normally be a static application may be adapted to the needs of PWDs and help visually impaired, aurally impaired or speech impaired people on the go and act like an interactive, personalized assistant.

For instance, Facebook launched Automatic Alt Text (AAT), a feature that uses object recognition to describe photos to people who are blind or who have low vision and use screen readers. This innovation received a government achievement award for greatly improving the experience that people with vision loss have with photo sharing media. AI implementation for people with visual challenges to view and access Facebook is a notable example of the benefits that well-thought out implementation can bring. Use of machine learning and AI to include automatically-generated captions or subtitles based on voice-recognition technologies to video content for the deaf is another instance of such technology serving PWDs-interests. In addition to intermediaries like social media,

⁴See Disability ICT Toolkit for Africa available at www.un.org/esa/socdev/documents/disability/Toolkit/ICTandDisability.pdf



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primary content producers must be encouraged to create accessible content by including closed captions or subtitles wherever possible. Virtual reality tools like Oculus Rift and HTC Vive help PWDs explore new areas which they may not be able to physically access.⁵

In this regard, the government may also incentivize captioning and subtitling in Indian local languages by providing adequate support through existing language promotion and training programs.

6. What are the areas where collaboration between various stakeholders would be useful and how?

Response:

Areas where collaboration with various stakeholders would be desirable are:

- (i) **Research and Development:** Stakeholders including government, private sector, and civil society should be provided every opportunity to collaborate during the early stages of the innovation and product development process, i.e. during R&D. This will ensure that new technology – to the extent possible – accounts for the interests of PWDs individuals from inception.
- (ii) **Policy formulation:** Stakeholders including government, private sector, and civil society must collaborate on policies that may be effective incentives to promote increased accessibility of ICT to PWDs. A voluntary working group may be established so as to continually consider emerging issues and craft optimal policy solutions. Emphasis must be on harmonizing policy initiatives under the broader heads of existing initiatives such as Accessible India, Digital India, and Start Up India in order to ensure tangible progress.
- (iii) **Localization:** Developments in ICT aimed at PWDs must also be able to account for conditions and socio-economic realities which are unique to India, for e.g. diversity of languages. Government and other stakeholders need to work together to ensure that global developments are accounted for in a manner that solutions – while compatible with global standards – are also customized for the Indian setting. This will ensure economies of scale in development of new technologies, and that they are localised to the Indian market.

7. Should the Government/TRAI direct the telecom and broadcasting service providers to provide information pertaining to billing, usage, pricing and contracts in the form accessible to PWDs? Please provide a rationale for your response.

Response:

While the government/TRAI may consider requiring telecom and broadcasting service providers to provide critical information in an accessible format, any such intervention must only be at a principle-level. TRAI must not provide specific directions containing specific forms of accessible information to be provided.

Existing law under the Rights of Persons with Disabilities Act, 2016 already creates obligations relating to accessible information. Additional sector-specific binding regulation will lead to confusion and

⁵www.ieeexplore.ieee.org/document/6671021/



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overlapping obligations. Within this context, TRAI may direct telecom and broadcasting service providers to implement the text and spirit of the RPD Act. In this regard, TRAI may collaboratively come up with non-binding guidelines which provide guidance on how telecom and broadcasting service providers can give full effect to provisions of the RPD Act.

For example, TRAI may direct that all telecom and broadcasting service providers provide full publicity to their existing mechanisms for improving accessibility by conforming to the non-binding guidelines on compliance with the RPD Act. TRAI must, however, refrain from defining specific requirements as these are unlikely to lead to benefits for the PWDs community – while overlapping with the provision of the RPD Act.

8. Should the Government/TRAI mandate that the devices used for watching television provided through cable, satellite/DTH, fibre, etc. should be made accessible to PWDs?

Response:

As discussed in our response to Question 7 above, TRAI may collaboratively come up with non-binding guidelines which provide guidance on how telecom and broadcasting service providers can give full effect to provisions of the RPD Act.

Mandating specific compliance or technical solutions is likely to lead to significant increases in cost of provision of services without corresponding benefits. For instance, if the broadcast/cable ecosystem is required to ensure set top boxes contain certain technology, the costs of implementation of the same are likely to be passed to the end-consumer.

Instead, TRAI intervention must focus on collaboration to identify problems at the grassroots, and craft collaborative solutions towards the same. This could include promoting innovation for end-users which helps accessibility in respect of existing ICT technology (such as set top boxes) and incentivising developments for service providers to invest in more inclusive forms of targeted schemes. Mandating by law that all set top boxes be accessible will result in significant costs - with the benefits being inefficiently targeted. Intervention must focus on first making technology accessible and this can only be achieved through a collaborative process.

9. Should international accessibility standards be adopted for telecommunication and broadcasting services and devices in India? Please suggest steps required to ensure their adoption by the service providers/device manufacturers.

Response:

Please see our responses to questions 4, 7 and 8 as above. Compatibility with the concerned international standards should be encouraged through an incentive-led mechanism. Directly mandating compliance will disproportionately affect small enterprises and entrepreneurs – many of whom work at the front lines to alleviate problems faced by PWDs.

In addition, mandating international standards without localisation will lead to standards that do not account for India's cultural realities. International standards must be considered and collaboratively discussed and debated before being mandated. Without localisation, international standards may be blind to India's diversity for e.g. in relation to languages and other socio-economic considerations.



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Compliance with such standards may be encouraged through tax incentives, waiver of filing fees, and other schemes aimed at facilitating innovation and investment in PWDs-friendly and accessible ICTs.

10. What additional measures can be taken or technologies can be deployed by service providers or equipment manufactures to assist PWDs?

Response:

Please see our response to question 5 above. Artificial Intelligence, Machine Learning, and Virtual Reality are examples of emerging technologies that may be leveraged to bring quality of life improvements to PWDs. As the space is rapidly developing with new technological paradigms rapidly emerging, the Government must look to collaborate with industry players to track, study, and evolve responses to new technologies.

In this regard, many service providers have already begun to implement these technologies in their own offerings. Their experience may be leveraged in cross-industry collaborative forums to guide policy initiatives.

11. Should device manufacturers be mandated to allow in their device's operating system those applications which are meant to assist PWDs? Please justify your response.

Response:

No. As discussed in our responses above, the government should look to create a collaborative regulatory model which is premised on the issuance of broad principle-based guidelines which provide flexibility to each stakeholder to craft solutions to give effect to the provisions of existing law (for e.g. as contained in the RPD Act). Mandating specific technology solutions will create compliance requirements which may not achieve the desired objective of promoting accessibility to ICT for PWDs. In addition, they may have undesirable spill-over effects which affect broader societal interests. For instance, mandating that certain applications be mandatorily included could result in potential cybersecurity and privacy concerns. Today, most applications are subject to strict audit and compliance requirements before being permitted to operate on various app-stores and platforms. Forcing device manufacturers to include certain applications may lead to unscrupulous application being pre-installed and causing privacy and security harms.

In addition, it is critical that TRAI not seek to mandate specific applications or solutions. If TRAI were to adopt this solution, it would result in TRAI having to choose between various applications to include. This is unsustainable as a regulatory policy as applications are constantly changing, being updated, and being discontinued.

A principle-based approach provides flexibility for device manufacturers and software companies to offer customised solutions based on specific disability criterion of an individual. Mandating all PWDs-oriented applications on devices would create clutter and make usage of devices more difficult for PWDs – the very stakeholder such a policy intervention seeks to benefit. Alternatively, the TRAI may



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seek to collaboratively come up with a specific bouquet of applications that device manufacturers may choose to include on their devices if requested.⁶

12. What measures can be taken in India so that emergency services are made more accessible for PWDs? Should the implementation of these measures by TSPs be made mandatory by the Government?

Response:

As discussed in our responses above, the government, in collaboration with first responders, TSPs, ISPs, OEMs and developers may come together to create a common emergency interface, standards, or craft other solutions which may facilitate emergency access for PWDs. However, there is no need to mandate the same. However, it is important to keep in mind that first responders must be able to receive communications from these solutions, and that funding must also be made available for first responders to the extent they must make corresponding technology upgrades.

Any such platform or standards may illustratively make the following provisions.

- a. For those with **vision** impairments, the standards must account for technologies like universal voice commands in various languages through which person can reach the desired emergency service. Upon activation of such code, the emergency services may reach the concerned PWDs using GPS enabled location tracking and relay.
- b. For **aurally** disabled or persons with **speech** impairments – text- based communication portals including chat and SMS and technologies such as video call (and sign language) might prove helpful.
- c. In addition, there are several emerging solutions that can benefit both PWDs and the general community. Products like speech recognition (originally designed for people with limited hand movements) and scanners (designed as part of a document reading device coupled with speech synthesis for blind people) are now mass market products. The Internet Engineering Task Force (IETF) has developed real-time text specifications as a framework document. Real-time text enables Deaf people and persons with hearing impairment to communicate by text in real time in a way similar to a voice conversation. Further, Total Conversation incorporates voice, text and video to ensure that persons who are Deaf, have a hearing impairment or who are deaf-blind can engage in a phone conversation that meets their needs.⁷
- d. Existing implementations include Apple’s iPod, iPad and iPhone products demonstrate how universal design features can be integrated into ICT. The native software on these devices allows for configuration to suit a wide range of needs and provides enhanced

⁶The European Commission has created a list of the various projects it has funded at <https://ec.europa.eu/digital-single-market/en/news/european-commission-supports-research-and-innovation-technologies-break-down-barriers-people>

⁷Internet Society at <https://www.internetsociety.org/resources/doc/2012/internet-accessibility-internet-use-by-persons-with-disabilities-moving-forward/>



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functionality for users who are blind or vision impaired, users who are deaf or hearing impaired, users who have physical or motor skill limitations and users who experience difficulty with learning or literacy

13. Should the device/handset manufacturer be mandated to manufacture at least one model of handsets for PWDs which is having accessibility features and which are compatible with assistive technology features such as hearing and visual aids including emergency buttons?

Response:

No. In an emerging and competitive market such as India, mandating manufacturers to develop specialised handsets would distort competitive forces in favour of those entities which have extensive R&D capabilities and budgets. This would likely lead to foreign manufacturers obtaining an advantage over their emerging Indian counterparts. This may lead to Indian manufacturers being unfairly impacted at a stage when they are just emerging onto the market.

Instead, as discussed in our responses above, TRAI should collaboratively create a voluntary set of guiding principles which manufacturers can adopt based on their specific circumstances and capacities. These principles should be developed keeping in mind international standards, obligations under the RPD Act, and the emerging nature of the Indian device manufacturing ecosystem.

14. How should companies be encouraged to utilise their CSR funds for development of applications, devices and services for the PWDs? What kind of devices and applications can be envisaged/developed to make achieve ICT accessibility for PWDs?

Response:

TRAI should recommend that the Ministry of Corporate Affairs amend Schedule VII of the Companies Act, 2013 to include references to ICT inclusion as part of the "Activities which may be included by companies in their corporate social responsibility policies" (as referenced under Section 135 of the Companies Act). This would encourage companies to also divert CSR funds to development of applications, devices, and services for PWDs or to support activities of organisations engaging in such developments.

15. Should any other funding mechanism for the development of applications, devices and services meant for the PWDs be considered? Please give a rationale for your response.

Response:

No other funding mechanism is required to be considered. Inclusion of PWDs-related ICT innovation as a recognised CSR avenue combined with government-industry collaboration is likely to be sufficient to provide initial stimulus to the ICT sector innovate for PWDs accessibility. In addition, after appropriate government-industry consultation, TRAI may also consider deploying a certain percentage of USO funds towards promoting research, development, and innovation in PWDs-friendly ICT. For instance, in Australia, the government provides adaptive technology to PWDs through an employment assistance fund funded by the government.

TRAI must also look to collate details about existing schemes available at various levels of government and collate the same in a manner that may help service providers and manufacturers of all sizes to use. At present, only large entities have the requisite resources to continually track and submit



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proposals to new and existing schemes. TRAI providing a collated reference source would provide a centralised resource for entities in the ICT ecosystem to consult.

17. Should the Government incentivise the manufacturing and development of ICT tools and devices viz. tools for mobile accessibility, TV accessibility or for web accessibility for PWDs? Please give a rationale for your answer

Response:

Yes. In general, government should consider incentivising manufacturing and development of accessible ICT tools and devices. Possible mechanisms include tax breaks, preference in government procurement, waivers of regulatory fees (for e.g. in relation to IP filing), and similar benefits for ICT manufactures and service providers innovating for PWDs. If implemented through reliable channels, depending on structure adopted, these incentives may have two-fold benefits. At the outset, incentives would lead to increased innovation and R&D activities in the sector – potentially resulting in new and innovative solutions to existing challenges for PWDs. Secondly, direct incentives may also have the direct effect of lowering costs – resulting in more affordable ICT solutions for PWDs.

Targeted incentive structure, if implemented robustly, can also be more effective than other mechanisms such as mandatory compliance or compatibility. This is as incentives will ensure that benefits will flow only to those who require them – while ensuring that there are no disproportionate costs.

In this regard, please read this response with responses to questions 4 and 9 above.
