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CONTRIBUTION FROM THE DYNAMIC SPECTRUM ALLIANCE TO THE ETHIOPIAN COMMUNICATIONS AUTHORITY STAKEHOLDER CONSULTATION NO. 001-2019 – THE ETHIOPIAN TELECOMMUNICATIONS SECTOR

The Dynamic Spectrum Alliance (DSA) [1], a global, cross-industry alliance focused on increasing dynamic access to unused radio frequencies, has reviewed with interest the stakeholder consultation no. 001-2019 on the Ethiopian Telecommunications Sector and offers a contribution for consideration as the Ethiopian Communications Authority (ECA) develops the regulatory framework for a newly liberalized telecommunications sector.

The DSA would like to congratulate the Ethiopian Government on the progress already made towards reforming the Ethiopian telecommunications sector and for the transition to liberalization which will attract local and foreign investment and introduce competition. This competition is essential to reduce the cost of bandwidth for citizens and to expand the reach of wireless networks to promote economic development and reduce the significant digital divide that still exists in Ethiopia. Internet connectivity brings a wide range of social and economic benefits by helping promote digital inclusion and drive sustainable growth.

The DSA does not have any specific concerns to raise related to the proposed regulatory framework and market opening process. However, we address the request in section 4.14 that seeks comment on the proposed spectrum assignments contained in the draft licenses and the potential need for applications for additional spectrum within the proposed frequency bands and additional bands. Our contribution also relates to section 4.25 regarding universal access objectives to ensure that communications services are accessible to the largest number of users possible.

[1] The Dynamic Spectrum Alliance is a global, cross-industry alliance focused on increasing dynamic access to unused radio frequencies. The membership spans multinational companies, small- and medium-sized enterprises, academic, research, and other organizations from around the world, all working to create innovative solutions that will increase the utilization of available spectrum to the benefit of consumers and businesses alike. A full list of DSA members is available on the DSA's website at www.dynamicspectrumalliance.org/members/.

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As noted in section 3.2 the vision of the ECA is for the telecommunications market to serve as the foundation for a digital economy and offer increased choice, innovation and affordability for consumers. Internet connectivity is key to digital inclusion and transformation and more Internet Services Providers (ISPs) will join a liberalized Ethiopian telecommunications market. However, internet coverage is unequal at present and there is a digital divide between cities and rural areas. Although traditional Mobile Network Operators (MNO) may cover major urban areas it is unlikely that they will be able to provide affordable and reliable internet in the rural areas of Ethiopia where 79% of the population reside. Bridging this divide should be a central aim of any digital transformation effort.

The DSA encourages the ECA, while developing this new regulatory framework, to foster innovation in spectrum management, considering in their regulations not only the traditional technologies, but also enabling the regulatory framework for new technologies, which will enhance rural broadband connectivity. We therefore urge the ECA to consider modifying the current proposal to develop a more balanced regulatory approach between licensed, unlicensed, and lightly licensed spectrum access and considering dynamic spectrum access mechanisms.

With the latest technological advances, dynamic spectrum access presents new opportunities to bridge the digital divides between urban and rural areas and between the connected and unconnected. New technological innovations have made it possible for spectrum to be shared in a dynamic and efficient manner without interfering with existing incumbent services, boosting connectivity to rural areas. In this early stage of spectrum planning, Ethiopia has the opportunity to move away from a view of just licensed or unlicensed spectrum and instead develop a regulatory framework that allows for coordinated, shared spectrum. This will ensure that valuable spectrum is used more efficiently and enables innovative connectivity technologies to be deployed.

A good example of a technology using spectrum sharing is Television White Space (TVWS) where Dynamic Spectrum Access techniques and technologies enable broadband services to be deployed in unused or underused TV broadcast spectrum without interfering with broadcast or other incumbent services. Developing a regulatory framework that enables such innovative connectivity technologies will help

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enhance the possibility for all Ethiopian citizens to participate in and benefit from the envisioned digital economy.

The DSA has developed an infographic to explain how TVWS works and the role for regulators such as the ECA and this is attached as part of our contribution. Regulators can allow wireless access devices to transmit in TV Whitespaces on a shared, unlicensed basis, on condition they do not interfere with TV broadcasters and other licensed users. Dynamic Spectrum Access (DSA) technology and techniques make it possible for a White Space Radio Device (WSD) to evaluate its radio frequency environment, determine which frequencies are available for use on a non-interference basis, operate in those spaces, and adapt or cease operations in response to the real-time needs of priority users.

TVWS spectrum is harmonized at the global level and can be used to provide enhanced Wi-Fi, improved backhaul, connectivity for IoT services, and the wide area coverage needed to bring the Internet and related services to previously unconnected communities. The technology can be very helpful in adding capacity in urban environments, but it can be particularly useful to extending rural broadband connectivity because of the excellent propagation characteristics of spectrum in sub 1 GHz frequency bands. TVWS signals can travel over long distances and penetrate natural and man-made obstacles, allowing non-line of site operation and enabling coverage across entire rural areas, where this spectrum is abundant. This will specifically benefit Ethiopia due to its size and large rural population.

With the technology now proven and demand for cloud services growing rapidly, the adoption of TVWS is poised to accelerate. Dynamic Spectrum Access principles and techniques are being employed across multiple spectrum bands to improve utilization. There are already 300 TVWS deployments in 35 countries, including Colombia, Nigeria, South Africa and the United States. Most recently Ghana and Mozambique have published their TVWS regulatory framework.

Another example of the importance of a spectrum management balanced approach is the 6 GHz band (5925 - 7125 MHz) which will be critical for enhanced Wi-Fi and unlicensed devices that will support the 5G ecosystem. In order to avoid a spectrum crunch for Wi-Fi services, we invite ECA to consider facilitating license-exempt access to the 6 GHz band. With appropriate technical and operational rules, Wi-Fi and other

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wireless devices can co-exist with fixed systems, fixed satellite systems and other existing users of 6 GHz spectrum. This coexistence might require the use of databases to coordinate more intensive and efficient spectrum sharing. Regulators in a number of countries have authorized automated and even dynamic frequency coordination databases to manage real-time assignments in shared bands. These frequency coordination systems have proven they can protect incumbent operations, including military and public safety systems, from harmful interference. Although spectrum database coordination is nothing new, it has in recent years evolved from manual, to automated, to dynamic – adding automation and propagation modeling to static licensing data. Database solutions are active today from low- and medium- to high-frequency bands, and with various degrees of complexity. Database technologies are widely available, sufficiently mature, scalable and secure. For more information please see the DSA's Databases paper.

In summary, the DSA recommends the ECA to take this timely opportunity to develop a balanced regulatory approach between licensed, unlicensed, and lightly licensed to enable unused spectrum to be made available for broadband connectivity. This can improve the economics of rural coverage, support the services of mobile network operators, and help the ECA meet universal access objectives. The DSA is ready to establish a collaboration with the Authority and share our experience across the world.

For further information please contact:

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