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Issue: Expanding access to digital infrastructure in LEDCs

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I. Introduction

Many less economically developed countries (LEDCs) have limited access to digital infrastructure and the technology that comes with it. Such limitations may be said to be internet access, policy restrictions, and educational attainment.

The limitations interlinked to digital infrastructure are on the basis that the pricing of internet access is high. This leads to the inability to access the internet and the electrification rate of LEDC countries to be %52. LEDC countries also have a considerably low rate of STEM (Science, Technology, Engineering, and Mathematics) graduates willing to work in the sector and in general. Moreover, LEDC countries lack all policies in favor of the attainment of digital infrastructure and the solutions to arousing obstacles in contemporary infrastructure.

Alongside physical incapabilities, LEDC citizens also show difficulty in adapting to changes in technology and show signs of poor digital literacy. While the lack of adaptation to change is caused by poor literacy and the acceptance of poor literacy, the physical factors that go into the environment in which such digital infrastructure is expected to develop are rather poor.

The issue of such a digital divide in LEDC countries is also prominent with the rather frequent shutdowns of the internet during natural disasters or in fact, any event that serves as a climate hazard.

Thus, a divide presents between MEDC countries and in countries which have an electrification rate of %90. This great divide causes LEDC countries to fall behind in infrastructural innovations or sustain current ones. This divide is called a digital divide and it severely affects countries with developing economies. These effects may include a decrease in the quality of one's life, a less successful economy, or a fallback in educational systems.

Living standards tend to decrease as higher quality jobs have requirements of digital literacy, while lower paying jobs do not, therefore forcing a decrease in the income of citizens in LEDC countries.

The effect on education cannot be understated, as citizens wishing to receive education but are unable to provide the technology to fulfill online courses tend to stay behind a global standard, as seen during the COVID-19 pandemic and the period of online education.

Lastly, a historical period of adaptation to technology has shown an adaptation to the Industrial Revolution and more contemporarily, the usage of artificial intelligence (AI). Both examples and many more provide insight into the necessity of countries to adapt to changes in technology, to revolutionize their economies.

II. Involved Countries and Organizations

Cambodia

Cambodia is following a policy to minimize its part in the digital divide by focusing on the development of the Information and Communication Technology (ICT) sector and working with private sectors to utilize resources. They also aim to maximize internet access while minimizing the cost of electrification and access to the internet. In the 80th session of the UN Economic and Social Commission for Asia and the Pacific (UNESCAP), Mr Iech Setha, the deputy director of the IT department of Cambodia stated, “Bridging the digital divide is a top priority for Cambodia. We are expanding internet access, particularly in rural areas, and improving access to healthcare and public services.”

Indonesia, Myanmar, Ethiopia, Pakistan

All being LEDC countries, they struggle due to the same reason. All countries have relatively low rates of digital infrastructure implementation and astronomical costs. They all take rather positivist views towards digital divides. Many are working towards eliminating such illiteracy by signing agreements such as the Digital Pakistan Policy and Rolling Spectrum Strategy. The reasoning behind the divide tends to be because of their rural areas, gender discrimination, and potential bias toward technological advancements. They believe that long-term policies are what is helpful to mitigate the results of such a divide.

Many countries also focus on the idea of post-crisis growth due to the effects of COVID-19. The crisis led to the importance of technology in educational systems as well as communication. Many countries such as Indonesia have therefore debated such post-crisis plans in summits such as the B20 Indonesia Summit.

Another key idea that affects the digital divide in LEDC countries is gender inequality. While men are prone to have cell phones, women in Myanmar are seen to become obsolete within the world of technology and a hierarchical system.

Uganda

Being one of the countries struggling deeply with digital infrastructure, Uganda still does not have proper and reliable internet access in many of its rural areas. However, Uganda is taking a rather innovative

approach to the matter. Uganda partnered with the Research and Education Network for Uganda (RENU), the Ugandan National Research and Education Network (NREN) connected with Mesh ++, a connectivity solutions manufacturer based in Chicago, USA. They utilized solar power to create solar-powered internet routers. REMU had said in a press release during the pandemic that "... the eduroam service at the campuses of these institutions [were rendered] useless, and the huge volumes of bandwidth at these campuses remained unutilized. Students and staff needed reliable and affordable connectivity off-campus, and not on campus since campuses were closed. The migration of learning to online platforms exacerbated the problem."(RENU, Press Release, …Free Connectivity)

UN Global Compact

The UN Global Compact primarily focuses on sustainability and sustainable development. It is an objective organization which focuses on the solutions to problems. The issue of digital infrastructure inequality connects to their sustainable development goals of inequality, sustained economic growth, and partnership for such goals. Within countries, it is important to empower and promote inclusive social and economic growth. As the UN's 10th goal states, "We can ensure equal opportunity and reduce inequalities of income if we eliminate discriminatory laws, policies and practices. Among countries, we need to ensure that developing countries are better represented in decision-making on global issues so that solutions can be more effective, credible, and accountable."

World Economic Forum

The World Economic Forum strives to solve the issue of a digital divide and its disadvantages for LEDC countries in an objective manner. It provides both an insight and the reasoning behind such divides and also potential solutions along with current ones. It strives to incorporate education, economics, and equality into its solutions. The World Economic Forum believes that it is a matter of opportunity and the usage of such opportunities, expressed by them stating "Digital technology touches every aspect of human lives and all the UN Sustainable Development Goals (SDGs). While digital transformation can help the 45 Least Developed Countries (LDCs) to sidestep traditional development pathways, the real challenge is the growing digital divide between the LDCs and the rest of the world."

III. Focused Overview of the Issue

1. Digital Infrastructure and LEDCs

The digital infrastructure struggle within many LEDC countries is prominent due to many reasons, however the primary reasons may be economic insufficiency, gender inequality, lack of education, increasing costs of infrastructure, political polarizations, digital illiteracy, and insufficient policies.

When talking about such infrastructure, it is important to comprehend that many economies which are developing tend to turn their focus of their economies elsewhere than ICT. While there are many historical examples of the successful investments of such technologies, such as Korea, not many countries would wish to invest in “cell phones and Artificial intelligence”. However, simplifying infrastructure in such a way is incorrect.

In the 21st century, digital infrastructure has gained a meaning of communication and more importantly, education. With the beginning of COVID, investing in digital technologies became even more important, which led many countries to have a short crisis period and later on have to start debating how they would recover.

Investing in such technologies, however, especially in developing economies, is not easy. Integrating a system people do not understand and show literacy for, especially in a country with very few STEM majors who work on the matter, could be challenging.

Not only is the cost difficult for the country itself to acquire but also for individuals themselves to buy a technological device is considered unusual or luxury.

2. The Digital Divide

The digital divide is the unwanted cliff between the economically developing countries' ability to utilize the infrastructure and integrate this digital infrastructure into their economies and LEDC countries’ struggles to do so. This digital divide causes both political instability and changes the economic and financial situation of the global economy as it is. Many people in countries such as Ethiopia, Myanmar, and Indonesia commence projects for the sole purpose of acquiring electricity, while the United

“Picture 1: RENU, Uganda, Free Connectivity”

States and many other more developed countries use such resources much more extensively.

While the digital divide is often defined by whether people “have” access to technology, it also includes differences in how technology is used. Even though some LEDC countries have access to electricity, they are incapable of using such electricity due to many factors outside their control. These might be weather conditions, weather instability, and geographical locations. Many people, especially in Southeast Asia and Africa, face these problems because most technological infrastructure is designed for relatively more developed countries.

3. The Development of STEM

Economically developed countries often invest heavily in technology, science, and mathematics, strengthening their economies and leading in STEM development. In contrast, many less economically developed countries (LEDCs) lack a focus on STEM fields and have fewer graduates in these areas contributing to their workforce.This creates a setback in the development and understanding of technology.

The development of STEM fields is influenced by cultural values but is mainly tied to a country's economic state. In less economically stable countries, the need to focus on immediate income and survival often leads to lower investment in and development of STEM fields.

When these fields are underdeveloped, people cannot improve their region’s infrastructure, keeping the country reliant on basic labor instead of producing advanced or specialized goods. This focus on low-skill jobs often leads to lower wages and slower economic growth. As a result, people prioritize earning money quickly over investing in education or technology, which limits opportunities for better jobs and living conditions, creating a cycle of low living standards.

IV. Key Vocabulary

Infrastructure: The basics of a public form or business, religion, or political group that often benefits the public.

Literacy: The ability to read and write a certain way or certain elements.

Digital Divide: The gap between those with and without access to modern digital technologies.

ICT (Information and Communications Technology): Technologies providing access to information through telecommunications, such as the internet, wireless networks, and mobile phones.

Skill Gap: The difference between the skills workers have and those required by modern jobs, often impacted by lack of technology access.

V. Important Events & Chronology

Date (Day/Month/Year)	Event
December 2019	COVID 19
September 2022	Mozambique-Malawi Interconnector project
2023	The UN Technology Makers Lab
21 March 2023	British International Investment and Dolma Impact Fund II make their largest combined investment in the internet sector in Nepal
25 July 2023	Seventy-eighth session of the General Assembly Article A/78/232
26 February - 2 March 2024	WTO and the World Bank on the margins of the 13th Ministerial Conference of the WTO

VI. Past Resolutions and Treaties

Science, technology and Innovation for sustainable development - Agenda item 19 (a)- A/78/232 and Report of Second Committee - Agenda item 19 (a)

While it is a more general resolution on sustainable development, this resolution also deals with the sustainable development of technological infrastructure and a digital divide, creating inequality within development. While other parts of the resolution may be successful and sufficient, as it is a rather contemporary resolution, issues regarded in the resolution are still present and most likely will be for many years to come. As the digital divide tends to be more about the economic state of countries rather than their

ability to adapt to the infrastructure itself, a country tends to need to change its economy as well as many other systems, taking time and resources.

United Nations Virtual Expert Group Meeting, 2-5, March 2021

Such group meetings are discussed in the principles of Article 15 and the fact that this digital divide creates inequality between different developing countries and rather economically developed ones. The meeting focuses on the fact that citizens must be given the right to utilize such infrastructure and that rights to do so must be restored. It argues that participation in digital literacy, education, and many more is a human right.

Equal access to digital infrastructure is requested and the Report of the Secretary-General to the Commission for Social Development on its 59th meeting in February “Member States should close the digital divide and promote digital inclusion, by taking into account national and regional contexts and addressing the challenges associated with access (poor infrastructure roll-out); affordability (cost of connection and of computers and similar devices); skills (digital literacy); and awareness and/or relevance (limited awareness of the benefits and absence of relevant content in local languages)” is quoted. Such said actions have not yet minimized the effect of post-COVID digital divides however have been working towards this goal with similar ideas ever since.

VII. Failed Solution Attempts

18th Annual Internet Governance Forum, “The Internet We Want – Empowering All People.”

As the Secretary-General has stated, “The Forum needs to further strengthen its role as being the global digital policy forum, in finding points of convergence and consensus and in identifying digital solutions in reaching the 2030 Agenda”.

While effective in theory, the divide between nations is a rather physical one and looks to be in desperate need of change in economies, infrastructure, and public states. Other past forum events have also not revolutionized the issue as raising awareness on equality has become rather frequent and countries expect action to be taken to reach equality.

G20 Summit Bali

The Secretary-General once again stated the “... call for more connectivity; and less digital fragmentation. More bridges across digital divides; and fewer barriers. Greater autonomy for ordinary people; less abuse and disinformation”.

After this Summit, Secretary-General Antonio Guterres was criticized due to his points on the concern about digital safety during times of pandemic by stating “But free speech is not a free pass”, he argued, saying that the Digital Compact must consider the responsibility of Governments, tech companies, and social media platforms to “prevent online bullying and deadly disinformation that undermines democracy, human rights, and science”. (Secretary-General António Guterres, G20 Summit Bali)

Even though this was accurate, the positive effects digital infrastructure has on countries, especially during times of pandemics cannot be ignored. The main source that people depended on was electronic devices.

VIII. Possible Solutions

Although there are countless potential solutions, some prominent recommendations from the World Economic Forum focus on addressing the effects of digital illiteracy. Encouraging education in STEM subjects and making online courses accessible can help increase the number of graduates working to develop digital infrastructure and participate in the industry. Programs like the UN Makers Lab, which promote STEM activities for both college students and younger generations, could play a vital role in achieving this.

Supportive government policies are also crucial for overcoming obstacles and fostering innovation in digital infrastructure. When governments prioritize digital development, it sends a strong message about the importance of this goal. For example, competition policies targeting telecom companies could reduce mobile data costs, making mobile devices more affordable and accessible. Joining agreements like the WTO Information Technology Agreement could further encourage such progress.

In addition to these measures, countries must focus on providing digital literacy training, affordable internet services, and technical support. These steps would make internet access more convenient and widespread, integrating it more deeply into citizens' daily lives.

Finally, the role of political will cannot be overstated. A government’s commitment to innovation can determine whether a country remains a developing economy or evolves to embrace revolutionary advancements, much like the Industrial Revolution in the past. In today’s context, this revolution centers around Artificial Intelligence. If these solutions are implemented, many countries could integrate AI systems into their digital infrastructure, paving the way for future growth and development.

IX. Useful Links

- https://www.weforum.org/stories/2024/03/unleashing-digital-transformation-in-the-least-developed-countries/
- https://documents.un.org/doc/undoc/gen/n23/389/90/pdf/n2338990.pdf
- https://www.un.org/development/desa/ageing/wp-content/uploads/sites/24/2021/02/Heidrun-Mollenkopf_paper.pdf
- https://www.aiib.org/en/about-aiib/who-we-are/infrastructure-for-tomorrow/technology-enabled-infrastructure/img/insights/G20-Compendium-DI-Financing-final.pdf
- https://news.un.org/en/tags/digital-divide
- https://unglobalcompact.org/sdgs

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