

Human Rights, Global Equality, and Access to Knowledge: Bridging the Divide — Toward a Universal Framework for Knowledge Justice.

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Abstract

One of the most spoken consequences but little taken into consideration aspects of global human rights is access to knowledge. Also even though the right to education and the ability to learn about the culture and the scientific life are formally guaranteed by means of international human rights instruments starting with the Article 26 of the Universal Declaration of Human rights as well as the international covenant on Economic, social and cultural rights, the structural circumstances in which knowledge is distributed all over the world still reproduce and solidify systemic inequality. The reflected interdependence between human rights and global equality, and access to knowledge is the focus of the present paper as the author holds that denial of knowledge is not merely a deficiency of social dimension but the ultimate malpractice of human capability and dignity. Based on the international human rights law, capabilities approach of Amartya Sen and critical pedagogy by Paulo Freire, the paper talks about four obstacles to a just distribution of knowledge that exist structurally: the digital divide, exposing 2.7 billion people to meaningful internet access; limiting intellectual property regimes that commodify scientific and educational resources beyond the reach of the Global South; lingo-hegemony, with 56-percent of online This paper then analyses the current international frameworks namely the World Summit on the Information Society, Sustainable Development Goals, and the Open Science Recommendation of UNESCO and finds the critical areas of gaps in their enforcement. In response, it proposes a Universal Knowledge Access Protocol (UKAP): a binding multilateral treaty framework structured around four pillars — universal connectivity, mandatory open access for publicly funded research, multilingual knowledge infrastructure, and minimum internet freedom standards. The paper concludes that dismantling knowledge inequality is inseparable from the broader project of achieving substantive global equality, and that without deliberate institutional reform, the knowledge gap will continue to widen in the coming decades.

Keywords: human rights; knowledge access; digital divide; global equality; intellectual property; open access; educational equity

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1. Introduction

During the first decades of the twenty-first century, the ability to receive, comprehend and share knowledge has turned into one of the most determinant factors of human freedom. Knowledge determines whether a citizen is able to hold a power to account, whether a farmer is able to adapt to a changing climatic condition, whether a patient is able to understand a diagnosis, and whether a poor child has any chance of getting above

poverty. Access to knowledge, in this sense, is not a right among others - it is the right which renders the assertion of all other rights possible.

"The free flow of ideas, by word and image" — enshrined in the UNESCO Constitution since 1945 — remains, eighty years later, a promise more aspirational than real for the majority of the world's population¹.

Regardless of the unprecedented growth of the internet and digital technology within the last thirty years, the spread of knowledge in the world is highly and systematically unequal. The world is not splitting down the line of the informed and the uninformed, it is breaking down in familiar geographical, wealth, language, and political power lines. It is the communities who are most denied access to knowledge, who are most in need of knowledge to help them navigate through poverty, disease, environmental degradation and political repression. It has long been the principle of the international human rights framework that access to knowledge and education are fundamental rights at least in principle. The right to education is provided in article 26 of the Universal Declaration of Human rights (1948). Article 27 guards the right to be involved in cultural and scientific life of the community. The rights are further explained in the International Covenant on Economic, Social and Cultural Rights (1966), to have a binding effect. This is not a coincidental gap, but one that has been maintained by intellectual property regimes, lack of infrastructure, hierarchies of language, and authoritarian information controls and which the current international system has failed to overcome.²

The gap is the main focus of this paper. It posits that knowledge access should be not only a development goal or an educational desire, but also a right towards justice that should be denied to any human being and that denial of which should be quantifiable and remediable injustice. It also contends that the world cannot attain true global equality, in terms of health, economic opportunity, political participation and human dignity, and as long as the knowledge commons of the world is not accessible to most of the people who live on the planet.

The analysis is carried out in five moves that are interrelated. It initially lays the theoretical and legal groundwork of the treatment of knowledge access as a human right, which relies on international law, capabilities approach of Amartya Sen and Martha Nussbaum³, and critical pedagogy of Paulo Freire. It then overlays the four main structural obstacles to equitable access to knowledge: the digital divide, limiting intellectual property regimes, linguistic hegemony and state censorship. It looks into the way in which knowledge inequality is a social reproduction mechanism - strengthening and embedding the inequalities it creates. It assesses the international frameworks that are already in place and their limitations of enforcement. And it ends with a suggestion of the Universal Knowledge Access Protocol (UKAP), a new binding multilateral model constructed to tackle these issues with the institutional power and resource dedication they require. The interests of this investigation are not ideal. With each year that knowledge is not a commons but a commodity, the gap in the levels of knowledge between the most and the least informed populations in the world is widened. Each year of that enlarging signifies deaths that could not have happened, prospects that could not have been fulfilled and even democratic shortfall that threatens the integrity of global governance itself. Whether knowledge access

¹ UNESCO Constitution, Preamble (1945): "since wars begin in the minds of men, it is in the minds of men that the defences of peace must be constructed." The free flow of ideas is codified as a foundational purpose of the organisation.

² Universal Declaration of Human Rights, GA Res. 217A, UN Doc. A/810, Art. 26 (1948): "Everyone has the right to education." Article 27 further guarantees the right "to share in scientific advancement and its benefits."

³ Amartya Sen, *Development as Freedom* (Oxford University Press, 1999) 75–76; Martha C. Nussbaum, *Creating Capabilities: The Human Development Approach* (Harvard University Press, 2011) 33–34. Both scholars treat access to information and literacy as foundational "central capabilities."

is a question of importance or not is not before the international community, but rather whether there is the will to construct the institutions that can make it universal.

2. Research Objectives

This article is rooted in five intertwined goals which combine to make an in-depth investigation into knowledge justice as a facet of global human rights:

1. In order to develop the theoretical and legal underpinnings of knowledge access as a binding human right under international law, based on the Universal Declaration of Human Rights (Articles 26/27), the ICESCR and the capabilities approach of Amartya Sen and Martha Nussbaum.
2. To define and discuss the four major structural obstacles that impede equitable knowledge access in the world: the digital divide, restrictive intellectual property regimes, linguistic hegemony and state-sponsored censorship.
3. To reflect that knowledge inequality is a mechanism to reproduce more general social, economical and political inequality between generations and geographies.
4. To critically evaluate the sufficiency of the current international models - such as WSIS, the SDGs, and UNESCO Open Science Recommendation - to address structural knowledge inequalities.
5. To recommend a Universal Knowledge Access Protocol (UKAP), a binding multilateral treaty framework, which is based on four substantive pillars: universal connectivity, mandatory open access, multilingual knowledge infrastructure and minimum internet freedom standards.

3. Literature Review

The article relies on a multi-disciplinary and extensive literature of the international human rights law, political philosophy, education theory, development economics and empirical research of digital access.

3.1. *The international human rights law is provided in.*

The Articles of the Universal Declaration of Human Rights (1948), which introduce the right to education, the right to participate in cultural and scientific life, and are the foundation of the legal literature, are Articles 26 and 27. These rights are further consolidated under the binding treaty form of the International Covenant on Economic, Social and Cultural Rights (ICESCR, 1966) and in particular Articles 13 (education) and 15 (science and culture). It can also be found in the General Comment No. 13 (1999) by the UN Committee on Economic, Social and Cultural Rights which extends the non-discrimination requirement in education to a positive requirement to address structural imbalances. Article 19 of the International Covenant on Civil and Political Rights (ICCPR, 1966) forms the foundation of the analysis of the state censorship and internet freedom. CEDAW and CERD jurisprudence on substantive equality is also involved in the paper to situate the knowledge gap as a rights violation, as opposed to a development deficit.

3.2 Capabilities Frameworks and philosophy.

The capabilities framework which forms the basis of the normative argument in the paper is given in *Development as Freedom* (Oxford University Press, 1999) by Amartya Sen. Sen considers literacy, critical thinking and access to information as some of the key 'central capabilities' without which substantive human freedom cannot exist. This analysis is carried forward by Martha Nussbaum in her *Creating Capabilities: The Human Development Approach* (Harvard University Press, 2011) which recognizes cognitive and affiliative capabilities as key elements in a dignified human life. Combined, Sen and Nussbaum offer the analytical partnership between a rights-based and a development-

based explanation of knowledge access, knowledge deprivation is a main form of capability deprivation that is as severe as material poverty.

3.2. *Critical Pedagogy*

The Pedagogy of the Oppressed (Herder and Herder, 1970) by Paulo Freire is consulted on the basis of criticizing the banking model of education which, according to Freire, kills critical consciousness (*conscientizacao*) and thus disempowers instead of empowers information receivers. The work of Freire offers a qualitative aspect to the argument of the paper: not only should there be accessibility to knowledge, but the way in which it is available should be emancipatory, as opposed to instrumental.

3.4 **Inequality and Sociology of Education.**

The theoretical framework of the argument on intergenerational reproduction of inequality in the paper was made in Pierre Bourdieu, *The Forms of Capital* (in Richardson (ed.), *Handbook of Theory and Research in the Sociology of Education*, Greenwood, 1986). The difference between economic, social and cultural capital introduced by Bourdieu and his argument that institutionalised cultural capital is transformed into positional advantage can be explained by the fact that different access to knowledge is a mechanism to maintain inequality and not just its passive expression.

3.5 **Digital Divide in the Empirical Research.**

The article extensively uses quantitative empirical data of various sources, including major institutions:

The documents International Telecommunication Union Measuring Digital Development: Facts and Figures 2024 list the mobile broadband penetration of Sub-Saharan Africa between 35 and 35 (as opposed to almost 90 in Western Europe and North America) and the global internet gender gap at 16 percentage points (increasing to 30+ in South Asia and Sub-Saharan Africa).

- According to the Alliance for Affordable Internet, in more than 40 countries 1 GB of mobile data is more than 2% of average monthly income, the UN Broadband Commission affordability mark.

- According to the estimates of the ITU, the infrastructure investment gap is USD 400 billion to fill in order to attain universal broadband by 2030 (Connecting Humanity, 2020) - which highlights the insufficiency with respect to current multilateral funding.

3.3. *language, Censorship and Internet Freedom*

The empirical foundation of the linguistic hegemony part is based on the W3Techs Web Technology Surveys (2024) which document that 56% of all web sites are in English - only 17% of the total population of the world is native or fluent speakers of English. The Freedom on the Net 2024 by Freedom House defines that 72 percent of internet users in the world live in the country where people have been detained due to the expression via the internet. The paper puts these findings into context with the ICCPR Article 19 framework, and cites examples of the Great Firewall of China, Iran's National Information Network and the Runet in Russia as examples of systematic epistemic control.

4. **Theoretical and Legal Foundations**

The right to knowledge as a human right is a concept that is relatively new to the world. The right to education, which is guaranteed in Article 26 of the Universal Declaration of Human Rights (1948), as well as the right to engage in the cultural life of the community and to share in the scientific progress (Article 27) are implicit rights to access knowledge. The

International Covenant on Economic, Social and Cultural Rights (ICESCR, 1966)⁴ further explicated these rights in its articles about education (Article 13) and science and culture (Article 15). The UN Special Rapporteur on the Right to Education has always understood these provisions to refer to access to learning resources, digital infrastructure and the right to request and obtain information.

It has been long held by philosophers of education, in both instrumentalist tradition and the critical pedagogy of Paulo Freire, that knowledge provides constitutive power to human agency and dignity. Knowledge access, in terms of capabilities (Sen, 1999; Nussbaum, 2011), makes possible cognitive capabilities that form the basis of human flourishing: literacy and critical thinking, career choice and civic engagement. Loss of access to knowledge therefore is a key deprivation capability that is as serious as material poverty itself.⁵

4.1. *The Equality Dimension*

The human rights law incorporates an idea of non-discrimination: rights should be ensured regardless of race, sex, language, religion, national or social origin, or other status (UDHR, Art. 2)⁶. Within the knowledge domain, this principle requires the boundaries between the information-rich and the information-poor, be identified as a form of violation of equality, whether based on geographic, economic, linguistic or political lines. Substantive equality, as has been elaborated in the CEDAW jurisprudence and CERD Committee General Recommendations, does not mean formal non-discrimination, but proactive effort to correct structural imbalances.

5. Structural Barriers to Knowledge Access

5.1. *The Digital Divide*

The digital divide operates at multiple levels. At the infrastructure level, Sub-Saharan Africa has mobile broadband penetration rates of approximately 35%, compared to over 90% in Western Europe and North America (ITU, 2024).⁷ At the affordability level, mobile data costs consume a disproportionate share of income in low-income countries: the Alliance for Affordable Internet reports that 1GB of mobile data costs more than 2% of average monthly income in over 40 countries, against the UN target of under 2%.⁸ Digital illiteracy at the skills level implies that having connectivity will not translate into valuable knowledge access.

The inequalities are compounded by gender aspects of the digital divide. The International Telecommunication Union estimates that there is a 16 per cent difference between the use of the internet by women and men across the globe, but this difference increases to more than 30 per cent in South Asia and Sub-Saharan Africa⁹. This feminine marginalization

⁴ International Covenant on Economic, Social and Cultural Rights, GA Res. 2200A (XXI), Arts. 13–15 (1966). Article 13(1) recognises education as directed to “the full development of the human personality.”

⁵ Paulo Freire, *Pedagogy of the Oppressed* (Myra Bergman Ramos tr, Herder and Herder, 1970) 58. Freire argues that the “banking” model of education suppresses critical consciousness (*conscientização*), and that genuine knowledge access is constitutively linked to liberation.

⁶ UDHR, Art. 2: rights are guaranteed “without distinction of any kind, such as race, colour, sex, language, religion, political or other opinion, national or social origin, property, birth or other status.” See also Committee on Economic, Social and Cultural Rights, General Comment No. 13, UN Doc. E/C.12/1999/10 (1999) para. 31–37 (non-discrimination in education).

⁷ International Telecommunication Union (ITU), *Measuring Digital Development: Facts and Figures 2024* (ITU Publications, 2024) 14–17. Sub-Saharan Africa’s mobile broadband penetration stood at approximately 35%, against over 90% in Western Europe and North America.

⁸ Alliance for Affordable Internet (A4AI), *Affordability Report 2024* (Web Foundation, 2024) 22. The UN Broadband Commission target is that 1 GB of mobile data should cost no more than 2% of average monthly gross national income per capita.

⁹ ITU (n 7) 29. The global internet gender gap stands at approximately 16 percentage points; in South Asia and Sub-Saharan Africa the gap exceeds 30 percentage points.

adds to an already existing system of patriarchy that limits the access and use of education and economy by women.

5.2. *Intellectual Property Regimes*

The global intellectual property regime built upon the TRIPS Agreement (1995)¹⁰ and implemented by bilateral free trade agreements has established a context where knowledge is much more of a market good than of a commons. The cost of academic journals subscriptions has soared to high proportions: the top commercial publishers impose costs of institutional subscriptions that most global south universities cannot pay. Kamerlin et al. (2021) study have discovered that the yearly journal fund necessary to access extensive scientific literature will be higher than the overall research budget of the majority of African universities.¹¹

The sphere of pharmaceutical knowledge reveals the stakes of life and death of these inequalities. Artificial scarcity through patenting antiretroviral drugs, cancer treatments and vaccines against generic production is killing millions of people. The COVID-19 crisis underlined the role of intellectual property standards in hampering international health dramatically, the TRIPS waiver debate at the WTO showed that there were fault lines between the knowledge-exporting developed world and the knowledge-importing developing world.¹²

5.3. *Language and Cultural Barriers.*

About 56% of the total websites were in English (W3Techs, 2024)¹³ and 17% of the total population is a native or fluent English speaker. The fact that only a few colonial languages dominate the global knowledge production implies that indigenous knowledge systems, traditional ecological knowledge and non-Western intellectual traditions are critically underrepresented in global epistemic commons. The consequences of this language domination are not only to access, but to the shape and variety and quality of knowledge itself - what UNESCO refers to as cognitive justice.

5.4. *Organization of Resistance*

Annual Freedom on the Net report (2024) published by Freedom House revealed that 72% of internet users in the world today reside in countries where people have been detained on online expression.¹⁴ The internet filtering, which is controlled by the state, does not only block any of the political dissent but also health information, educational material, and journalistic material. The example of China, the Great Firewall, Iran, the National Information Network and Russia, Runet isolation project is a form of systematic government structure that is aimed at manipulating the epistemic space of whole peoples.

¹⁰ Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS Agreement), Annex 1C to the Marrakesh Agreement Establishing the World Trade Organization, 1869 UNTS 299 (1994, entered into force 1 January 1995). For a critical analysis, see Carlos M. Correa, *Trade Related Aspects of Intellectual Property Rights: A Commentary on the TRIPS Agreement* (Oxford University Press, 2007) chs 2–3.

¹¹ S. C. L. Kamerlin and others, “Barriers to Accessing Scientific Literature in Low-Income Countries” (2021) 22(5) EMBO Reports e52741. The authors found that annual journal subscription costs required to access comprehensive scientific literature exceed the entire research budgets of most African universities.

¹² WTO, “Waiver from Certain Provisions of the TRIPS Agreement for the Prevention, Containment and Treatment of COVID-19,” Decision of the Ministerial Conference, WT/MIN(22)/30 (17 June 2022). For background on the TRIPS waiver negotiations, see Prabhash Ranjan and Pushkar Anand, “The COVID-19 TRIPS Waiver” (2022) 56(3) *Journal of World Trade* 525.

¹³ W3Techs Web Technology Surveys, “Usage Statistics of Content Languages for Websites” (January 2024)

¹⁴ Freedom House, *Freedom on the Net 2024: The Repressive Power of Artificial Intelligence* (Freedom House, 2024) 4. 72% of internet users globally live in countries where individuals have been arrested for online expression.

Such practices contravene the protection of the right of freedom of seeking, receiving and imparting information as in the ICCPs Article 19.¹⁵

6. Reproduction of Social Injustice by Knowledge Inequality.

Knowledge inequality is not just the side effect of social and economic inequality - it is the way in which inequality is perpetuated by generation. The notion of cultural capital proposed by Pierre Bourdieu sheds some light on how different access to educationally prized knowledge can be transformed into different access to institutional credentials and positions in the social world¹⁶. Most families having higher access to books, educational technology and literate social network not only hold information but also the ability to negotiate information enriched environments.

On the macroeconomic level, growth and development economists have reported the existence of strong positive relations between educational level, level of knowledge infrastructure and economic development. The level of human development is always indicated stronger in the countries that invest in the areas of universal education, the infrastructure of open science, and digital public goods. On the other hand, there is a doubling disadvantage to the communities and nations that cannot access the global knowledge networks: they cannot access the information necessary to discover the opportunities to do so, navigate the market, engage in the governance system, or deal with climate change.

The COVID-19 pandemic was a natural experiment on the outcomes of inequality in knowledge with great clarity. Highly digitalized societies and those that were well connected to the internet quickly communicated information on health matters and people acted accordingly. Devoid communities, which include the poor, the old, and the countryside, had much poorer health outcomes that could be partially explained by being deprived of information (WHO, 2021)¹⁷. In this respect, access to knowledge was literally a question of life and death.

7. Existing International Frameworks and Their Limitations

Efforts to deal with knowledge inequality internationally have multiplied since the 2000s, but with mixed success. The Geneva Declaration and the Tunis Agenda were the results of the World Summit on the Information Society (WSIS, 2003 and 2005) and pledged its signatories to close the digital divide and foster knowledge societies.¹⁸ SDG 4 (quality education) and SDG 9 (innovation and digital infrastructure) are directly addressed knowledge access commitments of SDGs (2015)¹⁹.

The Recommendation on Open Educational Resources (OER, 2019) by UNESCO and its Recommendation on Open Science (2021) are both important normative steps, laying down the state responsibility to create and market freely available knowledge

¹⁵ International Covenant on Civil and Political Rights, GA Res. 2200A (XXI), Art. 19 (1966). Article 19(3) permits restrictions only where "provided by law and necessary" for respect of the rights of others or protection of national security, public order, public health or morals.

¹⁶ Pierre Bourdieu, "The Forms of Capital" in John G. Richardson (ed.), *Handbook of Theory and Research for the Sociology of Education* (Greenwood Press, 1986) 241, 243–248. Bourdieu distinguishes economic, social, and cultural capital; institutionalised cultural capital (academic credentials) converts into positional advantage in the social field

¹⁷ World Health Organization, WHO COVID-19 and the Social Determinants of Health and Health Equity: Evidence Brief (WHO, 2021) 12–14. The Brief documents how information poverty contributed to differential mortality outcomes during the pandemic.

¹⁸ World Summit on the Information Society, Geneva Declaration of Principles, WSIS-03/GENEVA/DOC/4-E (12 December 2003); Tunis Commitment, WSIS-05/TUNIS/DOC/7-E (18 November 2005). Both documents commit signatories to building inclusive information societies and bridging digital divides.

¹⁹ UN General Assembly, Transforming Our World: The 2030 Agenda for Sustainable Development, GA Res. 70/1 (25 September 2015). SDG 4 (quality education) and SDG 9 (industry, innovation and infrastructure) directly address knowledge access and digital connectivity.UNESCO.

goods.²⁰ Open access requirements in research funding agencies, such as the EU Horizon programme (2002) and the Budapest Open Access Initiative (2002) have increased the amount of scientific literature available via open access sources, but is incomplete and uneven.²¹

These structures are however under critical limitations. They are mainly soft-law in nature and do not have binding enforcement mechanisms. They have been unable to address the inherent conflict between intellectual property rights and rights to access knowledge - a conflict, which the WTO TRIPS Agreement and related bilateral trade agreements have made permanent in favor of corporations who own knowledge. The investments in digital inclusion programs are still grossly inadequate: according to the ITU, bridging the global connectivity divide would require an infrastructure investment of \$400 billion, which is not the slightest bit provided by existing multilateral mechanisms.²²

8. Toward a Universal Knowledge Access Protocol (UKAP)

To effectively overcome the structural barriers, as outlined in the above paragraphs, this paper suggests a Universal Knowledge Access Protocol (UKAP) which is a binding multilateral treaty framework that is based on human rights law. The Protocol would be based on the four following pillars:

8.1. *Human Pillar One: Universal Connectivity as a Human right.*

UKAP would put in place binding state commitments to attain universal broadband access by 2035, with progressive commitments that are proportional to the capacity of countries, and would be supported by a Global Digital Inclusion Fund (GDIF), capitalized at 50 billion a year through a mix of ITU member state payments, digital platforms levies, and multilateral development bank co-financing. The focus of connectivity requirements would extend beyond infrastructure but affordability requirements, digital literacy initiatives, and gender-balanced access requirements.

8.2. *Pillar Two: Publicly Funded Knowledge that must be in Open Access.*

UKAP would require all research products generated with government funds (be it national research grants, multilateral development funding, or support by an international organization) to be published freely and openly within six months of publication under permissive licensing terms. States would be mandated to make changes to the copyright laws in their countries to exempt the use, translation and adaptation of knowledge resources in non-commercial uses. A UKAP Dispute Settlement Mechanism would enable states to object to intellectual property enforcement regimes, which unreasonably limit access to knowledge.

8.3. *Pillar Three: Multilingual Knowledge Infrastructure.*

UKAP would create a Multilingual Knowledge Commons - a treaty-based interoperability system that would translate, localize and preserve the knowledge resources in all major languages of the world and endangered languages. The states would make commitments in terms of translation support programs, development of multilingual artificial

²⁰ UNESCO, Recommendation on Open Science, UNESCO General Conference Res. 40C/5 (November 2021); UNESCO, Recommendation on Open Educational Resources, UNESCO General Conference Res. 40C/1 (November 2019). Both instruments are soft-law instruments without binding enforcement mechanisms.

²¹ Budapest Open Access Initiative Declaration (14 February 2002) accessed 1 March 2024; European Commission, Horizon Europe Programme Guide (2021) Section 5.2 (mandatory open access to publications).

²² ITU, Connecting Humanity: Assessing Investment Needs of Connecting Humanity to the Internet by 2030 (ITU Publications, 2020) 5. The ITU estimated a global infrastructure investment gap of approximately USD 400 billion to achieve universal broadband connectivity by 2030.

intelligence tools and traditional and native knowledge systems documentation under community-controlled open licensing regimes.

8.4. Pillar Four: Standards of Internet Freedom.

UKAP would institutionalize the minimum standards of internet freedom, as duties of international human rights law, with monitoring authority of a UN Special Rapporteur on Knowledge Access. The implementation of blanket content filtering regimes by states would be outlawed and any limitation on online information would have to pass tough proportionality scrutiny in line with ICCPR Article 19(3) - legality, necessity and proportionality in the pursuit of legitimate goals.

9. Anticipated Challenges and Critiques

UKAP framework will be met with a lot of political opposition. The developed countries with large intellectual property markets, the United States, the European Union member countries, Japan, will oppose the open access requirements that jeopardize the commercial publishing and pharmaceutical industries. Authoritarianism will not accept the provisions of internet freedom because it will be seen as a threat on sovereignty. Funding needs of universal connection will be a disputed issue in a multilateral fatigue of burden-sharing.

International law scholars will have issues regarding enforceability and compliance. The international human rights law has shown that the ratification of the treaties does not necessarily lead to implementation within the country. The suggested Dispute Settlement Mechanism is based on the WTO model - however, the crisis of the Appellate Body of the WTO indicates the weakness of the binding international adjudication. These are real issues that sincere supporters of UKAP must consider and solve by having a keen institutional design.

The cultural aspects of global knowledge access have legitimate concerns, as well. Opponents of decolonial and indigenous rights movements call on the danger of imposing Western epistemic paradigms in the name of inclusion in universal frameworks. To prevent repeating the issue with colonial knowledge extraction via a rights-based lens, UKAP should have strong safeguards against the sovereignty of indigenous data and the control of knowledge by communities.

10. Recommendations

The recommendations presented in the paper are structured with regards to the four pillars of the proposed Universal Knowledge Access Protocol (UKAP) and complemented with some institutional and policy observations. These are not suggestions but legal duties that should be enforced by the international human rights law, but not development goals.

Pillar 1 - Universal Connectivity as a Human Right.

- States are encouraged to make binding commitments to close the digital divide by ensuring universal access to broadband by 2035 with gradual steps that will be in line with national capacity.
- It is recommended to capitalise A Global Digital Inclusion Fund (GDIF) at USD 50 billion annually that is funded by ITU member states, levies on digital platforms, and multilateral development bank co-financing.
- Connectivity commitments should not simply be limited to the physical infrastructure but also include affordability standards (1 GB of data at not more than 2 percent of average monthly income), designed digital literacy initiatives, and gender-balanced requirements to access imposed.

Pillar 2- Knowledge funded by Government that must be Openly Accessible.

- Any work created using government funds, such as national grants, multilateral development funds and aid by international organisations should be compulsory published in open access repositories within six months of publication under a permissive Creative Commons licence.
- States are to change the national copyright laws to exclude non-commercial use, translation and adaptation of educational and scientific knowledge resources.
- A UKAP Dispute Settlement Mechanism ought to be created and this would allow the states to challenge intellectual property enforcement regimes that unreasonably limit access to knowledge - the WTO adjudication, with a human rights mandate.
- The pharmaceutical knowledge regime needs to be re-structured: TRIPS flexibilities have to be made the rule not the exception in order to avoid artificial shortage of life-saving medical knowledge.

Pillar 3 Multilingual Infrastructure of Knowledge.

- An Multilingual Knowledge Commons based on treaties needs to be created to translate, localize and conserve knowledge resources in all the major world languages and some of the endangered languages.
- The states will be obliged to develop multilingual artificial intelligence tools, local management of the documentation of indigenous and traditional knowledge systems, and open access archiving of non-Western intellectual traditions.
- The colonial monopoly of the epistemics of the world (especially English) must be discussed as a structural rights concern - cognitive justice entails that the knowledge creation and sharing processes should be characterized by the real variety of human languages and epistemologies.

Pillar 4 -Minimum Internet Freedom Standards

- UKAP needs to come up with internationally binding minimum standards regarding internet freedom, which should take the form of responsibilities of the ICCPR Article 19 framework.
- The blanket content filtering regimes must be outlawed under international law, any limitation to online information must meet the tripartite test of legality, necessity and proportionality.
- A UN Special Rapporteur on Knowledge Access should be created that has monitoring capabilities, the power to visit countries and has the ability to accept an individual complaint on knowledge access violations.
- Systematic state actions to control epistemics, including the Great Firewall of China, the National Information Network of Iran and the Runet isolation of Russia should be listed as an official violation of international human rights in the scope of enforcement of UKAP.

11. Conclusion

All the facts gathered in this paper lead to one indisputable fact: there is no truth that knowledge inequality is accidental to geography or development, it is a political choice, which is supported by institutional practices at the cost of human dignity. There is no digital divide, no repressive intellectual property laws, no linguistic domination, no government censorship. They are mutually supporting columns of a world knowledge infrastructure that selectively locks out most of the world to the information and ideas they require to lead healthy, informed and free lives. Communities that fail to get access to the information on community health lose lives. Lack of access to agricultural research where farmers are

concerned leads to failure of harvests. Democracies degenerate when the citizens are not able to share in independent journalism. Innovation will not occur when the researchers in the Global south are unable to access scientific literature and the knowledge-rich and knowledge poor countries continue to be separated by the existing gap which grows bigger and bigger with every year that passes. Knowledge deprivation is not a passive situation, it is a dynamic entity which magnifies all other aspects of inequality in which it interacts. International community has not been totally silent. The Sustainable Development Goals, the World Summit on the Information Society, the Open Science Recommendation by UNESCO, and the Budapest Open Access Initiative all are true steps in the right direction of normativity. But progress in norms and not enforced. Proclamations of no obligation, promises of no mechanism of funding, and ideals of no accountability systems keep the structural sources of knowledge inequality wholly unchanging. The disjunction between the rhetorical dedication of the world to knowledge as a human right and institutional reality to knowledge as a commodity continues to be wide. The Universal Knowledge Access Protocol suggested in this paper is an effort to bridge that gap by providing tangible, enforceable and resource endowed international commitments. The idea of universal connectivity, obligatory open access, the infrastructure being multilingual, and the freedom of the internet is not some utopian requirement, it is a reasonable, technically feasible, and ethically obligatory one. The willingness of political authorities to do them is the constraining factor and the only way to develop such will is through a prolonged advocacy of civil society, academia and governments of the countries that will benefit the most with a truly equitable global knowledge commons. The Information Age has been referred to as the twenty first century. But a billion-people- informationally -disenfranchised Information Age is not a human accomplishment - it is a human failure. Remedying that failure is among the moral imperatives of our time. The tools exist. The only thing left is the shared determination to pursue justice of knowledge in place of knowledge privilege, and to establish international institutions up to that decision.

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