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# Minority and Indigenous Trends 2020

Focus on technology



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Cover: A protestor uses her smartphone to take photos of police officers blocking an intersection outside First Unitarian Church during a protest in Louisville, Kentucky, US, on 24 September 2020. The day before, a grand jury decided not to charge Kentucky police officers for the killing of Breonna Taylor, igniting a fresh wave of protests across the US. Credit: *Luke Sharrett/Bloomberg via Getty Images*

Inside front cover: Portrait of a Yazidi woman in Duhok, Iraqi Kurdistan. Credit: *Younes Mohammad*

Inside back cover: Portrait of an Oromo man in Sheikh Hussein shrine in Oromia, Ethiopia. Credit: *Eric Lafforgue / Alamy*

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**Focus on technology**

Edited by Peter Grant

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# Foreword



## E. Tendayi Achiume

*UN Special Rapporteur on contemporary forms of racism, racial discrimination and xenophobia and related intolerance*

For minorities and indigenous peoples, technology has all too often been a tool of oppression. From the occupation of the Americas to the enslavement of millions of Africans and the abuses of colonial rule, technology has regularly been implicated in the control and exploitation of marginalized communities. In the process, their own cultures and civilizations have also been devastated or erased.



Sadly, this problematic relationship between technology and discrimination persists to this day – from predictive policing algorithms and ‘smart’ migration management to online hate speech and surveillance. The irony is that some of the most sophisticated innovations today are being used to entrench deep-seated historic inequalities. The technologies themselves may be cutting edge, but if they simply recreate old hierarchies in new ways, then they could take us back decades in terms of human rights.

Then there are further challenges around affordability, accessibility and other constraints that can prevent certain groups from enjoying any potential benefits. For instance, while assistive technologies such as wheelchairs can undoubtedly improve the lives of persons with disabilities, those belonging to minority or indigenous communities frequently struggle to secure them due to limited resources, official prejudice and added barriers around language, culture or geography that can reinforce these issues.

Is another future possible, one where technological progress can create equally progressive social outcomes? As this volume testifies, there are many examples of activists who are taking technologies into their own hands to achieve real and lasting change. When communities are able to access and use technologies from a place of equality and empowerment – such as the use of digital mapping for indigenous forest conservation and the mobilization of anti-racism protests through the #BlackLivesMatter movement – the results are genuinely exciting and transformative.

There is much discussion around the importance of a rights-based approach to technology, but there is a risk that this can at times sound like a constraint: a question primarily of checks and restrictions. In fact, the opposite is true – perhaps more than speed, bandwidth or other technical specifications, the true measure of a technology is inclusion, accessibility and non-discrimination. That, more than anything, is the surest way of promoting innovation, creativity and development for all, regardless of who they are.

# Executive summary

Technology increasingly permeates every aspect of our lives, from the use of big data to information and communication technologies (ICTs) to artificial intelligence (AI) and automation. These developments are often framed around issues such as efficiency, speed and innovation, but for minorities, indigenous peoples and other marginalized groups there are often very different forces at play – the replication of existing patterns of exclusion in new forms.

In a context where discrimination against minorities and indigenous peoples remains strong, technologies alone are not enough to deliver positive change. Indeed, without the appropriate checks and protections in place, they may side-line these communities even further. Consequently, there needs to be a renewed focus on human rights in the development, dissemination and use of technologies, and a greater awareness that, alongside their benefits, they have the potential to cause lasting harm.

While a central aim of the Sustainable Development Goals (SDGs) was to reduce social inequalities within societies, the outbreak of the Covid-19 pandemic has highlighted how profound gaps remain for minorities and indigenous peoples in many countries. Though there is much hope and uncertainty around the possibilities of ‘track and trace’ mobile applications and other emerging technologies to resolve the crisis, without a firm commitment to social justice and universal access it is likely that many will be denied their benefits.

With minorities and indigenous peoples disproportionately represented among the world’s poor, it is not surprising that poverty is itself a major barrier to these groups accessing mobile phones, computers and other technologies. Besides the issue of affordability, there may be physical and geographic constraints, particularly for communities in rural or remote locations. In addition, other hurdles such as limited

information in minority or indigenous languages and scripts can compound lack of access. For marginalized groups within minority and indigenous communities, such as persons with disabilities, further significant issues arise – for instance, whether websites are accessible and compatible with assistive technologies.

The need for a more holistic approach to technology is therefore more urgent than ever, with an emphasis not only on affordable pricing and accessible delivery, but also culturally appropriate and inclusive design. Importantly, an inclusive approach to technology should translate not only to equitable access as users, but also meaningful participation in technology and software development. At present, however, minority and indigenous employment in sectors such as computing remains extremely low, particularly at levels that influence design choices and decision making. This poses a fundamental challenge to the creation of more diversity friendly technologies downstream.

Without concerted efforts to ensure they have positive outcomes for minorities and indigenous peoples, technologies could instead reinforce their exclusion. This can happen as an unintended consequence of systems that rely on data that is itself informed by bias. In the United States (US) and elsewhere, for example, the use of automated recruitment systems by corporations has typically identified potential new employees based on profiles of previous successful applicants, with the result that those groups favoured in the past – in particular, men and white Americans rather than women and members of ethnic minorities – continue to receive preference.

When technologies are actively mobilized to target certain communities, however, there is the possibility of systematic human rights violations on a scale rarely realized until now. In Xinjiang, the Chinese government has created a vast panopticon of surveillance, spanning DNA tests, virtual checkpoints and online monitoring to control and censor the millions of Uyghur Muslims in the region. Though this represents one of the most extreme examples of how technologies can be coopted to violate the human rights of marginalized communities en masse, many of these tools are being used in different forms elsewhere. In Europe, for instance, migration management in some countries has been given over to various technological 'solutions' such as facial scanning, spy drones and even lie detectors – an approach widely criticized for its dubious science as well as its disregard for human rights.

From biometric databanks to CCTV, surveillance is becoming more commonplace across the world, with deeply troubling implications for individual privacy, freedom of movement and other rights. Even when packaged innocuously, as in the growing trend towards 'smart cities' and the use of big data to achieve more efficient urban planning, some groups risk becoming even more marginalized. Minorities and indigenous peoples, who for centuries have contended with the negative impacts of technologies imposed on them by colonial governments, repressive regimes and global corporations, have good reason to be wary of the supposed benefits that technological change can bring.

This does not, however, mean that technological development is automatically against the interests of these communities. While the values and traditions of indigenous peoples in particular are often assumed to be in opposition to technology, there is a long history of indigenous invention and innovation that is still urgently relevant to some of today's most pressing challenges, including climate change. There are also many examples of how minority and indigenous communities, if given the chance to access new technologies and the training to use them on their own terms, have successfully exploited them to achieve significant social gains.

Indeed, some of the most inspiring examples of technology-driven activism are being pioneered by members of minority and indigenous communities. From citizen-led monitoring and reporting of human rights abuses in conflict zones to digital mapping of logging in communal forests, there is considerable opportunity for technologies to support land rights, document oppression and persecution, secure justice and empower community members. For this potential to be realized, though, an enabling and inclusive human rights environment must be in place: without this, minorities and indigenous peoples will be largely, once more, left behind.

The issues, then, extend far beyond the relative value of a particular technology. Many, if not most, have the capacity to deliver positive or negative outcomes, depending on how they are managed and used. This is illustrated clearly by the internet, where online hate speech against migrants, minorities and other stigmatized groups is commonplace and has been used to incite hatred and violence against them, up to and including genocide, as was evident in the situation in Myanmar affecting the Rohingya. But while social media platforms such as Twitter and Facebook have regularly been exploited by nationalist, extremist and far-right groups to spread hate, they have also served as a platform where some of the most transformative civil rights movements in recent years have mobilized. This is where the enormously influential #BlackLivesMatter protests first flourished, for instance, not only swelling the number of people engaged in its work but also laying the foundation for a far more diverse activism free from traditional organizational hierarchies.

There is widespread agreement that the coming years will be profoundly shaped by AI, automation and other innovations. What sort of future they usher in, however, depends on the decisions we make now. Human rights, equality and justice, must be at the heart of how we manage and develop these technologies. For minorities, indigenous peoples and other marginalized groups, the potential to achieve greater equality and recognition using technologies could be huge – but only if they are able to participate fully in every stage of that process themselves, from initial concept development to being full users and controllers of technology, data and online spaces.

## RECOMMENDATIONS

- *Mainstream human rights for all into the development and dissemination of technologies, with a particular focus on the barriers that minorities and indigenous peoples face.* This requires a more holistic examination of technologies that assesses their social, economic and political implications as well as their technical capabilities. Accessibility, affordability, appropriateness and availability should be a central part of their function, measured through clear data on the proportion of minority and indigenous community members able to use these technologies freely in ways that meet needs or address concerns. This is especially important for technologies involved in public service delivery, such as the increasing use of smartphones in educational settings and health care: in these circumstances, lack of access could exacerbate exclusion further.
- *Focus on improving minority and indigenous inclusion, not only as end users of technologies, but also upstream in their design and production.* While it is vital to ensure that minority and indigenous community members are able to access available technologies, it is also important that their role extends beyond this to equitable participation in the production of these technologies at every stage of their development. At the moment, minority and indigenous representation in key sectors such as computer programming and software engineering remains very low. As a result, many members of these communities continue to be excluded from the economic benefits of employment in these fields, thereby entrenching existing power imbalances in society.
- *Promote a diverse and expansive approach to technology development that enables the creation of a wide range of products suitable for different communities.* At present, there is a tendency for smart technologies, web platforms and other widely used tools to be monolingual, mono-script and designed around the needs, values and assumptions of the dominant majority, particularly its male members. This is unlikely to change until members of minorities, indigenous peoples and other marginalized groups, including women and people with disabilities, are able to contribute equitably to these processes. Among other measures, this means ensuring products are available in minority languages, including sign languages, and are culturally appropriate for different communities.
- *Conduct human rights impact assessments as a necessary first step whenever digital technologies are being considered for adoption by public authorities.* These impact assessments must include a focus on inclusion as well as non-discrimination. They should be carried out with the meaningful participation of all affected minorities and indigenous peoples, including representatives of marginalized groups within these communities, in their design and implementation.

This is particularly crucial when AI and predictive algorithms are being adopted for public decision-making. In such cases, algorithmic impact assessments should be conducted ahead of any introduction of an automated decision system. These should be updated when systems are upgraded, and the results made publicly available. All appropriate measures must be taken to mitigate risks identified through the impact assessments. With governments increasingly outsourcing technological development and delivery to companies and research institutions, it is vital that they are not able to outsource their human rights obligations as well.

- *Ensure accountability and independent oversight.* Public authorities should only use digital systems that are auditable, in order to ensure that they are available for independent oversight. Legislation and administrative guidelines should be put into place making this a requirement in public tendering processes for the use of digital technologies.
- *Scrutinize the use of AI and automation in decision-making, with a focus on ensuring transparency and non-discrimination.* This is especially important in areas such as suspect identification, prison sentencing, access to essential services, migration management and other issues of public decision-making where the human costs are high and the potential for bias, given past trends, is markedly high. Crucially, automated processes and their assumed objectivity should always be questioned, with the same review and accountability mechanisms that would accompany a human-led decision. Given the widespread involvement of private companies and academic institutions in the development of these technologies, it is also important that clear requirements are established to ensure good conduct, including ensuring that data on their impacts is transparent and publicly available. If companies or public agencies use an automated recruitment or service delivery system that replicates inequalities around ethnicity, religion, gender or disability as a result of their algorithms, then the outcome is still discriminatory and should be penalized as such.
- *Establish and enforce clear protocols on the collection, retention and use of personal data by governments, companies and other actors.* Though privacy and freedom of movement are universal human rights concerns, the increasing use of biometric data, facial recognition and online monitoring to target particular groups has very direct relevance for minorities and indigenous peoples. While the Chinese government's intrusive surveillance of millions of Uyghur Muslims in the name of security is an especially egregious example, similar patterns of discriminatory policing are emerging elsewhere. Even seemingly innocuous interventions justified by efficiency or cost effectiveness, such as the growing trend for 'smart'

development in cities, pose significant concerns for members of communities with a long history of discrimination against them. These issues have become even more pressing since the outbreak of the Covid-19 pandemic, as many technologies such as 'track and trace' applications could raise the danger of privacy intrusions if misused by governments or corporations.

■ *Enshrine universal access to the internet as a right for all citizens, with a positive emphasis on accessibility and safety rather than censorship and surveillance.* The importance of the internet as a source of information, social connections, employment opportunities and public services means that lack of provision can directly affect the ability to access many basic rights. Governments therefore have a responsibility to ensure that all their citizens have ready and secure access to the internet, with a particular emphasis on poor, remote or marginalized communities currently excluded from its benefits. Governments need to increase steps to ensure that online spaces and platforms are used constructively and are not exploited to mobilize hate against any section of their community, and in particular are not used to organize or incite violence linked to racism, religious tensions, gender or any other protected characteristic. Along with rights follow responsibilities, and educational services need to ensure that public knowledge about fake news, hate speech and its effects keeps pace with levels of access and usage. While this should include the creation and enforcement of anti-hate speech provisions in national legislation, particularly in relation to incitement to violence, governments should not use hate speech as a pretext to target activists and political opposition groups to silence dissent. Nor should they use the existence of hate speech to access private information stored or shared online. Regulatory authorities applying such laws must be demonstrably independent and accountable.

■ *Abstain from imposing blanket internet shutdowns in the name of security, especially for protracted periods.* Human rights law allows limitations to freedom of information in certain very limited circumstances. There have been multiple instances of internet shutdowns where the test to justify state intervention in freedom of speech (and an internet shutdown) has not been met. Any internet shutdown should be strictly limited to exceptional circumstances where there is strong evidence of imminent mass killings and where the internet is clearly playing an inciting role in those killings or attacks. Outside of these very narrowly defined exceptions, internet shutdowns are in breach of international standards on freedom of expression. These measures, being indiscriminate by nature, can effectively amount to a form of collective punishment and may increase impunity and insecurity by preventing the documentation and reporting of human rights abuses.



## Businesses

- *Recognize that they have a responsibility to respect human rights and apply the UN Guiding Principles on Business and Human Rights.* ICT companies must act with due diligence and avoid the infringement of the rights of their users and the wider public. Human rights impact assessments must be undertaken at all stages, beginning at the conceptualization, design and testing stages of new technologies, including the algorithms and data sets that will be incorporated in them. Potentially discriminatory outcomes should be identified as much as possible in advance, with all necessary steps taken to prevent and mitigate them.
- *Establish clear and transparent protocols for content posted on social media platforms, especially concerning hate speech.* These protocols should be drawn up in close consultation with representatives of minority and indigenous communities and other marginalized groups that may be targeted or otherwise affected. These protocols should also be specific and predictable, clearly informing users in advance, as well as assessed against the legality, necessity and proportionality principles set out in international standards concerning freedom of expression. Content moderation must take into account local contexts, including cultural and linguistic nuances, while remaining coherent and foreseeable. External complaints mechanisms should be established whereby users and others can draw attention to posts that contain hate speech, incite violence or are otherwise in breach of these protocols. Such complaints mechanisms should respond to and address complaints as quickly as possible. Content containing hate speech should be taken down within 24 hours. Platforms should be required to publish the average time between a report of hateful or dangerous speech and its removal at regular intervals, as well as statistics on the proportion of complaints that are upheld and denied.

# **Thematic Chapters**

# The threats of technology to minority and indigenous rights

Michael Caster

The global 'digital divide' continues to prevent ethnic, religious and linguistic minorities and indigenous peoples from accessing the internet and associated information and communication technologies (ICTs) that may support peace, democracy and the promotion of human rights.



Imams and government officials pass under security cameras as they leave the Id Kah Mosque during a government organised trip in Kashgar, Xinjiang Uighur Autonomous Region, China. *REUTERS / Ben Blanchard*

Sadly, patterns of exclusion and discrimination in everyday life are mirrored online; the United Nations (UN) reports that nearly half the world's population is not connected to the internet,<sup>1</sup> while the Organisation for Economic Co-operation and Development (OECD) estimates that the proportion of women using the internet is 12 per cent lower than that of men.<sup>2</sup>

Globally, marginalized ethnic groups have worse internet access than dominant ethnicities in the same country.<sup>3</sup> This remains the case despite the UN Human Rights Council (HRC) having stated back in 2011: 'Given that the Internet has become an indispensable tool for realizing a range of human rights, combating inequality, and accelerating development and human progress, ensuring universal access to the Internet should be a priority for all States.'<sup>4</sup>

While the internet and ICTs have great potential to challenge entrenched discrimination, the limited access of minorities and indigenous peoples to these technologies threatens to exacerbate their situation further. This is why abusive governments, especially across Asia, have increasingly turned to internet shutdowns to target certain ethnic and religious communities, taking away their freedom of expression and ability to document and disseminate evidence of ongoing human rights abuses. Intentionally shutting down or restricting access to the internet can in and of itself be a human rights violation, while also causing the proliferation of other rights abuses as it prevents victims from documenting and sharing them

online, from Cameroon to West Papua. This can also complicate future attempts at accountability. In 2019 alone, the digital rights organization Access Now documented some 213 internet shutdowns. This includes a 47 per cent increase across Africa, with Ethiopia identified as one of the worst offenders. However, India alone accounted for more than half of the total in 2019, with a single shutdown in Indian-controlled Kashmir lasting for nearly six months.

Even where access to the internet and other ICTs is not arbitrarily denied, minorities and indigenous peoples are frequently targets of online hate speech and sophisticated surveillance technologies. As noted in 2019 by the UN Special Rapporteur on freedom of opinion and expression,



*'The prevalence of online hate poses challenges to everyone, first and foremost the marginalized individuals who are its principal targets.'*<sup>5</sup> Examples include parts of Europe where online content vilifying refugees and migrants has been correlated to physical attacks against them, or the spread of anti-Rohingya speech on Facebook in Myanmar which has been tied to acts of genocide.'

1 UN ITU, 'Statistics', <https://www.itu.int/en/ITU-D/Statistics/Pages/stat/default.aspx>

2 OECD, *Bridging the Digital Gender Divide*, 2018, p. 25.

3 Weidmann, N.B., Benitez-Baleato, S., Hunziker, P., Glatz, E. and Dimitropoulos, X., 'Digital discrimination: political bias in internet service provision across ethnic groups', *Science*, 353(6304), pp. 1151–5.

4 UN HRC, Report of the Special Rapporteur on the Promotion and Protection of the Right to Freedom of Opinion and Expression, Frank La Rue, A/HRC/17/27, 16 May 2011.

5 OHCHR, 'Governments and internet companies fail to meet challenges of online hate – UN expert', 21 October 2019.

Many such concerns remain unresolved due to the lack of universally accepted obligations by public and private actors, issues of transparency and the poor implementation of existing human rights law in the digital age.

The impact of new technologies can also be more insidious. For example, not only is big data and machine learning allowing for the automation of human decision-making in governance and criminal justice – a situation that risks replicating historical injustices through algorithmic bias – but it is also increasingly leading to labour displacement, impacting particularly on minority communities. In the United States (US), a 2019 study by the Brookings think-tank noted that the ‘average current-task automation potential’ among Hispanics, Native Americans and black Americans was 47 per cent, 45 per cent and 44 per cent respectively, compared to 40 per cent among white Americans.<sup>6</sup>

## Social media and the internet

*‘The last decade has seen minorities around the world facing new and growing threats, fuelled by hate and bigotry being spewed through social media platforms... This has contributed to the rise of violent extremist groups*

*and to a dramatic increase in many countries of hate crimes targeting religious, ethnic and other minorities, including migrants.’*

UN Special Rapporteur on minority issues Fernand de Vareennes, 2020<sup>7</sup>

The role of social media in spreading hate speech is compounded when social media is effectively your only access to the internet, such as with Free Basics, a Facebook product providing free limited internet access in developing markets. Myanmar is emblematic, as noted in the UN independent international fact-finding mission: ‘Facebook has been a useful instrument for those seeking to spread hate, in a context where, for most users, Facebook is the Internet.’<sup>8</sup> Online, hate speech against Rohingya is rife, including comparisons of Rohingya to animals, accusations that Rohingya stage human rights abuses against themselves, and direct threats against them. According to one study, 1 in 10 of the social media posts by politicians of the Arakan National Party (ANP) contained hate speech. The ANP is the main party representing the dominant Rakhine ethnic group in Rakhine State, where most Rohingya lived prior to their mass displacement in 2017-18. The most popular hate messages by members of the Rakhine State parliament received 3,400 reactions or were shared up to 9,500 times.<sup>9</sup>

6 Muro, M., Maxim, R. and Whiton, J., *Automation and Artificial Intelligence: How Machines Are Affecting People and Places*, Washington, DC, Brookings, 2019, p. 44.

7 OHCHR, ‘UN expert denounces the propagation of hate speech through social media’, 27 February 2020.

8 OHCHR, Report of the Independent International Fact-finding Mission on Myanmar, 2018, p. 14.

9 Rajagopalan, M., Vo, L.T. and Soe, A.N., ‘How Facebook failed the Rohingya in Myanmar’, *Buzzfeed*, 27 August 2018.



According to one study, popular hate messages by members of the Rakhine State parliament in Myanmar received **3,400 reactions or were shared up to 9,500 times on social media.**

In response to such trends, in late 2018, Facebook admitted they had not done enough to prevent their 'platform from being used to foment division and incite offline violence', and vowed to do more to counter hate speech.

Meanwhile, in the name of combating 'fake news' or protecting national security, the Myanmar government has also at times blocked Facebook or shut down internet access in entire minority townships in Rakhine and Chin states. Under international law, freedom of expression and information may only be restricted under narrowly defined circumstances: namely, restrictions must be prescribed by law with sufficient precision to enable regulation; they must pursue a legitimate aim respecting other rights such as non-discrimination; and be necessary and proportionate. Responding to the shutdown, the non-governmental organization (NGO) Article 19 found that Myanmar failed to meet these basic requirements. Such measures arbitrarily restrict freedom of expression, while also making it harder to document and

disseminate evidence of human rights abuses against Rohingya and other minority populations. This can have long-term impacts on accountability. Here, arguably, the silencing of human rights abuses was not an unintended consequence but the specific aim of the shutdown. Similar problems occurred in Sri Lanka following the blocking of social media, purportedly to prevent the spread of rumours, after the 2019 Easter massacre.

In India, there have been accusations that social media have been weaponized against non-Hindu minorities, leading to communal violence. This is especially the case with WhatsApp, which has over 400 million monthly active users in India. On WhatsApp, Facebook and other platforms, there has been a reported increase in the spread of hate speech and disinformation portraying Muslim citizens as terrorists or rapists, or accusing them of plotting genocide against the Hindu majority. Such is the Hindu nationalist sentiment influencing the recent Citizenship Amendment Act, discriminatory legislation that favours migrants from certain religious communities (Hindu, Sikh, Buddhist, Jain, Parsi and Christian) for fast-tracked citizenship while conspicuously excluding Muslims. Its passage in December 2019 was accompanied by protests and communal violence. Videos of predominantly Muslim minorities being beaten have been shared via WhatsApp, an activity that has been compared to lynchings. In response, WhatsApp has limited the number of times a message can be forwarded, first to 20 and now to 5, but with WhatsApp group sizes of up to 256 people such content, even forwarded only 5 times, could

still reach nearly 1,300 people.<sup>10</sup> This is a reminder that technology does not exist in a vacuum, and merely curbing technology without addressing the underlying contexts of oppression is unlikely to have a significant impact. Such curbs may sound appealing, but they raise fundamental digital rights concerns. WhatsApp communications are end-to-end encrypted and the implementation of such a law would require removal of this protection, setting a dangerous precedent.

Encrypted and anonymous communication is important to protect the right to privacy and freedom of expression online, but it is also crucial for protecting vulnerable populations, such as ethnic, religious or sexual minorities, against arbitrary and unlawful interference or attacks. While India is not the only government to challenge encryption through legislation, private companies are also rolling out malware capable of attacking user privacy. In 2019, WhatsApp filed a lawsuit against Israeli spyware company NSO Group over a hack of 1,400 users, from Indian journalists to Rwandan human rights defenders. It has also been pointed out that Facebook's acquisition of WhatsApp, and its plans to integrate Instagram and WhatsApp with its own messaging service, have given rise to new digital security concerns in addition to the potential insecurities created by publicly shared hateful content on such platforms.

While stricter content moderation standards might seem to be an obvious solution, this also poses challenges, especially when companies are not

transparent about what is removed or how this is done. One effort to broadly improve social media in this regard, the 2018 Santa Clara Principles on Transparency and Accountability in Content Moderation, were put forward, calling on companies to publish the number of posts removed and accounts suspended, notify users of the reasons why their content is removed or accounts suspended, and to ensure effective means of appeal. But addressing hate speech online is not as simple as just removing hateful content or flagging abusive accounts. Grasping cultural, religious or linguistic nuances requires linguistic fluency, but the promise of fluency in local languages can also come with local anti-minority biases. Different platforms and jurisdictions have their own policies and inconsistencies. In the US, for example, Facebook's efforts to remove hate speech have also inadvertently censored minority groups using the platform to call out racism or create dialogue. In some countries, laws intended to protect minorities from online hate speech have instead engendered censorship and risked violating other rights.

Germany, in response to the role of hate speech in the early normalization of Nazi atrocities against Jews, Roma and other minorities during the Second World War, has some of the harshest hate speech laws. Since 2018, the Network Enforcement Act (NetzDG) requires social media companies like Facebook, Twitter and YouTube to remove 'illegal content' within 24 hours or risk fines of up to €50 million. In 2019, Australia also passed a law to penalize social

10 Kastrenakes, J., 'WhatsApp limits message forwarding in fight against misinformation', *The Verge*, 21 January 2019.



Since 2018, the Network Enforcement Act (NetzDG) requires social media companies to remove 'illegal content' **within 24 hours or risk fines of up to €50 million.**

media platforms for not removing certain content, carrying the potential risk of up to three years in prison for executives of companies who fail to do so. The United Kingdom (UK) is discussing similar legislation to combat hate speech, disinformation, cyberstalking and terrorist activity by creating a single regulator that can also penalize social media platforms. Compare these laws to Section 320 of the US Communication Decency Act, which holds that no social media platform shall be held liable for content provided by someone else, an important protection for free speech in that social media companies that may be held liable for speech on their platforms are likely to over-censor. While Germany and Australia have a generally functioning rule of law, some governments without independent judiciaries are also turning to laws like NetzDG to inspire their own regulations, including Russia, Belarus, Singapore, Vietnam and the Philippines.

In February 2020, Ethiopia, recently transitioning out of authoritarian rule and a past of wielding the law to detain and silence dissent, passed a law against hate speech that will punish

online dissemination of hate speech or disinformation with up to three years in prison. With over 90 distinct ethnic groups, Ethiopia has a history of marginalizing minority communities such as Oromo and Amhara, and in March 2020 the government shut down the internet in much of the Oromia region, amid reports of human rights abuses against the armed Oromo Liberation Front. Displacement of Ethiopian indigenous peoples, largely in the Gambella and Lower Omo regions, is also common. Hate speech has admittedly fuelled inter-ethnic violence, but without robust oversight and due process, instead of protecting such marginalized communities, the new anti-hate speech law may have a chilling effect on freedom of expression and inter-ethnic dialogue.

Nigeria is also considering harsh legislation that would allow authorities to shut down the internet, limit social media access, and make criticism of the government punishable with up to three years' imprisonment, and even, in some cases, impose life imprisonment or the death penalty for hate speech. Nigeria has a diverse population of some 250 distinct ethno-linguistic groups. It is a country that has long witnessed numerous conflicts over varying political and economic interests. For instance, tensions over land and water between settled farmers and nomadic herders in the Middle Belt have led to over 10,000 people being killed in the last decade alone. Ogoni and other minorities in the southern Niger Delta region have particularly faced persecution in connection with oil and gas extraction. If new laws intended to crack down on inter-ethnic violence or hate speech are not properly monitored, they may silence documentation and





**Ethiopia:** recently passed a law against hate speech that will punish online dissemination of hate speech or disinformation with up to three years in prison.

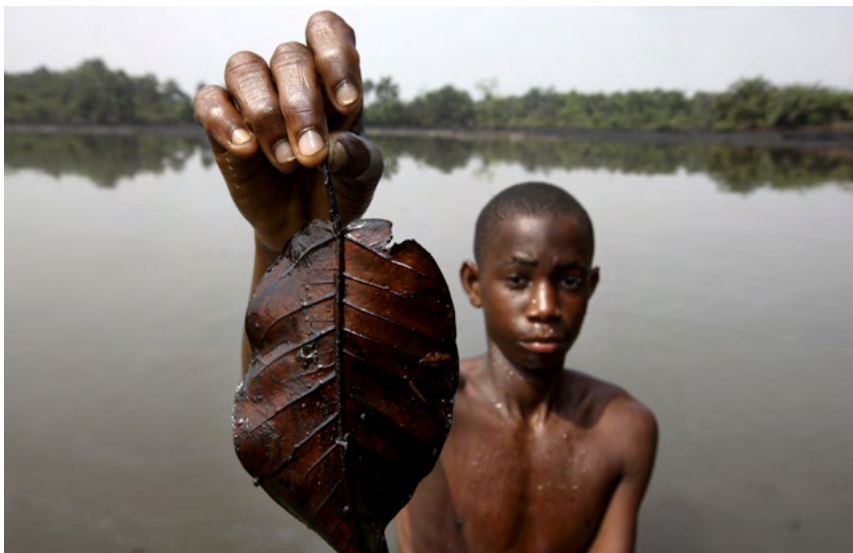
**Nigeria:** is considering harsh legislation that would allow authorities to shut down the internet, limit social media access, and make criticism of the government punishable with up to three years' imprisonment.

**Brazil:** in forming its council to counter fake news included the military and domestic intelligence services, both of which have a record of harassing, silencing and crushing minority and indigenous communities.

dissemination of such rights abuses without addressing the root causes of intolerance and discrimination.

Elsewhere, laws developed in the name of combating 'fake news' and online disinformation have been proposed or enacted in multiple countries, with alarming ramifications for human rights. When Brazil formed its council to counter fake news, it included the military and domestic intelligence services, both of which have a record of harassing,

silencing and crushing minority and indigenous communities. Under such legislation, for example, indigenous rights defenders documenting land-grabbing could be criminalized if their campaigns become labelled as fake news. Recognizing such global concerns, the Organization of American States (OAS), the African Commission on Human and Peoples' Rights, the Organization for Security and Co-operation in Europe and others put forward in 2017 the 'Joint Declaration on Freedom of Expression



Victor holds up a leaf coated in oil as he stands in an oil polluted fishpond in Ogoniland, Niger Delta. George Osodi

and “Fake News,” Disinformation and Propaganda’ as a guideline for a rights-based approach to managing potentially harmful content.

Moving beyond individual social media platforms, there are growing concerns around what has been termed cyberbalkanization or internet balkanization. This notion relates to some of the localized cyber laws noted above but goes well beyond in its theorization of internet ecosystems. In September 2018, former Google chief executive Eric Schmidt put forward the idea, during a meeting with a venture capital firm, that in the next 10 to 15 years the internet would be split between China and the US. China, after all, has perfected centralized internet control under the Great Firewall and an ever increasing armada of artificial intelligence (AI)-supported censorship applications so that banned topics, such as discussion of the persecution of Uyghurs and Tibetans, is not only criminalized but wiped from the Chinese internet and social media platforms. In China, the internet is not a reflection of reality but of the propaganda of the ruling Communist Party, and all the characterization or masking of minority persecution that comes with it. China calls it a ‘sovereign internet’, but such ideas mean the proliferation of human rights abuses online. It is little wonder that other authoritarian states are following suit, and in 2019 Russia adopted its own ‘Sovereign Internet Law’ based on the China model. Meanwhile, as Iranian-Canadian media scholar Hossein Derakhshan points out, the European Union (EU)’s General Data Protection Regulation (GDPR) and related laws on hate speech, privacy and copyright are essentially turning the

EU-based internet into its own separate legal sphere. Signs point to a three-tiered internet in the future – the US, China and Europe – with potentially vastly different risks and protection regimes for minority rights in the digital age.

## Surveillance and digital freedoms

*‘Surveillance tools can interfere with human rights, from the right to privacy and freedom of expression to rights of association and assembly, religious belief, non-discrimination, and public participation.’*

UN Special Rapporteur on the freedom of expression David Kaye, 2019<sup>11</sup>

In 2013, the UN General Assembly adopted a resolution on the right to privacy in the digital age, which expressed deep concerns over the negative impact that surveillance and the mass collection of personal data can have on human rights. Nowhere is this more pronounced than in China.

China has perfected sophisticated surveillance systems designed to profile ethnic and religious minorities, namely Uyghur, Kazakh, Kyrgyz and Hui Muslims in the Xinjiang Uyghur Autonomous Region. This surveillance is part of the mass extra-judicial internment, disappearance, torture and forced labour in Xinjiang that has led to widespread calls for a UN-led investigation. One of the main systems by which China enforces

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11 OHCHR, ‘UN expert calls for immediate moratorium on the sale, transfer and use of surveillance tools’, 25 June 2019.

the widespread surveillance of some 13 million regional Turkic Muslims is the Integrated Joint Operations Platform (IJOP), which Human Rights Watch (HRW) revealed in 2019 is used by authorities to collect and centralize massive amounts of personal information, from hair colour and height to private religious and cultural beliefs and whether family members have studied abroad.

Such platforms utilize AI to identify people through facial or voice recognition, and other machine-learning algorithms based on the mass forced collection of biometric data, such as DNA, fingerprints, iris scans and blood samples. When combined with ubiquitous checkpoints, IJOP also functions as a virtual fence, restricting freedom of movement in the real world. No longer confined to Xinjiang, the police in China have expanded on these technologies to target Uyghurs living across the country. According to a report by the *New York Times*, in April 2019 alone police in one central Chinese city ran facial recognition surveillance to determine if residents were Uyghurs some 500,000 times. Such technology is on the rise in China.<sup>12</sup>

But China is also a world-leading source for AI surveillance to other countries. As recently reported by the Carnegie Endowment for International Peace, Chinese technology firms such as Huawei, Hikvision, Dahua and ZTE supply AI surveillance technologies to

some 63 countries, 36 of which are members of China's Belt and Road Initiative. The fact that these products are often marketed with the help of loans from the Chinese government, including to countries which might otherwise not have the resources to purchase them, raises 'troubling questions about the extent to which the Chinese government is subsidizing the purchase of advanced repressive technology'.<sup>13</sup> In light of the human rights violations perpetrated with Chinese surveillance technology, it is furthermore concerning that companies such as ZTE, Dahua and others are communicating with the UN International Telecommunication Union (ITU) to shape new international standards on facial recognition surveillance.

Governments with abysmal human rights records are not the only ones employing or abusing surveillance technologies against ethnic and religious minority citizens. In the UK, following the 2011 London riots, the Metropolitan Police launched the Gangs Matrix program. A system utilizing AI and machine learning to compile a database of gang members, it has been criticized by Amnesty UK as 'a racially discriminatory system that stigmatises young black men for the music they listen to or their behaviour on social media'. According to a 2019 Freedom of Information Request obtained by *WIRED*, some 80 per cent are listed as 'African-Caribbean', with a further 12 per cent from other ethnic minority groups, while only the remaining 8 per cent are listed as 'white European'. Some are

12 Mozur, P., 'One month, 500,000 face scans: how China is using AI to profile a minority', *New York Times*, 14 April 2019.

13 Feldstein, S., *The Global Expansion of AI Surveillance*, Washington, DC, Carnegie Endowment for International Peace, September 2019.

as young as 12.<sup>14</sup> Since its inception, the database has listed around 7,000 people, and once someone is on the Matrix, finding out why or getting their name removed can be extremely difficult. But, in a victory for privacy and anti-discrimination advocates, several hundred names were removed from the Matrix in early 2020, correcting for ethnic bias and violations of data protection laws. Similarly, for many years following the 11 September 2001 attacks, the New York City Police Department (NYPD) engaged in a Muslim Surveillance Program that combined digital surveillance with informants and other types of physical surveillance, giving rise to numerous human rights concerns over the discriminatory targeting and stigmatization of religious minorities.

In Canada, police networks, the Canadian Security Intelligence Service (CSIS) and other government agencies have subjected indigenous rights defenders to abusive surveillance and hacking, often by labelling them 'multi-issue extremists'. This charge is largely in response to indigenous protests against oil and gas pipelines, hydroelectric dams, mining operations and other extractive industries due to environmental concerns and encroachment on indigenous land. In some cases, CSIS has worked directly with energy companies to conduct surveillance of indigenous peoples. In others, police surveillance has been clearly excessive, such as a 16-month undercover operation in Saskatchewan Province to catch an indigenous man accused of illegally selling 90 Canadian dollars' worth of fish.

These examples demonstrate that both open and repressive governments are engaged in surveillance practices that raise human rights concerns. As such, in responding to *Privacy International v. the United Kingdom*, a current case of government surveillance before the European Court of Human Rights, Article 19 and the Electronic Frontiers Foundation (EFF) among others point out that government surveillance, including hacking, has a 'chilling effect' on online expression, contributing to self-censorship or preventing them from organizing or supporting protests. It has also been shown to particularly impact vulnerable groups, members of which may be fearful of reporting online abuse.

Border crossings have also become hotspots for automated surveillance. The EU has piloted an AI-driven facial recognition lie-detector video surveillance border control system in Hungary, Greece and Latvia called iBorderCtrl. Based on the contested theory of 'affect recognition science', iBorderCtrl replaces human border guards with a video system that scans for facial anomalies while targets answer a series of questions. But the use of this technology at international borders, especially common crossing points for asylum seekers or migrant populations, raises concerns over the potential for bias in facial recognition systems, especially with regard to the analysis of women of colour, cultural-communicative differences, or the inability to distinguish the lingering impact of trauma.

The US has also experimented with 'smart border' technologies along

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14 Yeung, P., 'The grim reality of life under Gangs Matrix, London's controversial predictive policing tool', *WIRED*, 2 April 2019.

the US–Mexico border, relying on automated drones and other surveillance technologies. Such surveillance systems infringe the civil liberties of travellers, immigrants and people living along the border. They also pose other risks: in a 2019 study, researchers in Arizona used geospatial and statistical modelling to show that smart border technologies, instead of preventing undocumented border crossing, merely shifted migration routes to potentially more hazardous terrain, raising the number of migrant deaths in the process. Leading rights groups including EFF and the American Civil Liberties Union (ACLU) have opposed such measures on the grounds they would exacerbate racial and ethnic inequality in policing and immigration enforcement, as well as curbing freedom of expression and the right to privacy.

In 2019, the UN Special Rapporteur on freedom of expression, David Kaye, presented a report on surveillance

and human rights before the HRC. He recommended that states impose an immediate moratorium on surveillance tools until proper human rights safeguards are in place and called for an expansion of the Wassenaar Arrangement on Export Controls for Conventional Arms and Dual-Use Goods and Technologies to include spyware used to undermine human rights. For private companies, the report recommends that companies should publicly affirm their responsibilities under the UN Guiding Principles on Business and Human Rights to respect 'freedom of expression, privacy and related human rights, and integrate human rights due diligence processes from the earliest stages of product development and throughout their operations'.<sup>15</sup>

In their responses to the tragedy of Covid-19 throughout early 2020, many governments have seized on digital surveillance technologies as part of

15 HRC, Surveillance and Human Rights: Report of the Special Rapporteur on the promotion and protection of the right to freedom of opinion and expression, A/HRC/41/35, 28 May 2019.



Migrants try to enter Hungary through the border crossing in Horgos, Serbia. The EU has piloted surveillance technology involving a video system that would replace human border guards.

their efforts to contain its spread. While technology can and should play a role in resolving global challenges like the virus, without effective protections and the right to remedy its use also risks serious rights violations – especially for communities which are already discriminated against and marginalized. One such tool has been contact tracing and other mobile app-based tools designed to monitor infected or potentially infected populations, as in many contexts these applications have been developed without taking user privacy or other concerns into account. India is one such example: as Indian activist and writer Arundhati Roy has quipped, ‘The coronavirus is a gift to authoritarian states including India.’ Indeed, across South Asia governments have been accessing personal data on mobile devices without consent. All of these measures can have wide and long-lasting impacts on the right to privacy, impacting in turn on freedom of movement, association and religion, especially for minorities. Responding to such concerns, in early May 2020 Haroon Baloch of Bytes for All in Pakistan petitioned the Islamabad High Court to disallow such measures. At the time of writing, the case is still pending.

In addition to concerns around surveillance targeting minority communities, there have also been reports of Chinese, other Asian, Roma, Hispanic and other minorities across the world facing hate speech online and physical intimidation due to these groups being accorded blame for the spread of the virus. To make matters worse, minorities and indigenous peoples in many countries may already lack access to medical care due to structural discrimination.

## AI and discriminatory bias

People can be biased, but machines are objective – or so many people seem to believe. As machine-learning capabilities improve with more elegant algorithms and big data, the conventional thinking is that the biases or inefficiencies of human-led processes will vanish. But machines are trained by humans and this means that, just as children may learn the ethnic, religious or gender-based biases of their parents or communities, so too can machines develop biases based on their algorithms and datasets. Existing inequalities can be recreated in data, and big data can magnify such inequalities. This is known as algorithmic bias. Organizations like the US-based Algorithmic Justice League have set out to raise awareness of these issues and to mitigate its harms and biases. Confronting this bias is complicated when the algorithms are held in secret by private firms. Another challenge is that even when an algorithm has been corrected for bias against one group, this does not necessarily mean it has corrected for others, especially when discrimination and bias is intersectional. In many cases, from education and employment to policing and criminal sentencing, big data is increasingly influencing our experience in the world. This raises myriad concerns around algorithmic bias.

In 2014 Amazon began to design an AI system to automate parts of the job recruitment process. The algorithm was trained on a dataset based on all the resumés submitted over the previous decade, which also happened to overwhelmingly come from white men.



**China:** According to a New York Times report, in April 2019 police in one central Chinese city ran facial recognition surveillance to determine if residents were Uyghurs some 500,000 times.

**UK:** Following the 2011 London riots, the Metropolitan Police launched the Gangs Matrix program, a system utilizing AI and machine learning to compile a database of gang members. According to a 2019 Freedom of Information Request, some 80 per cent are listed as 'African-Caribbean'.

**Canada:** Police networks, the Canadian Security Intelligence Service (CSIS) and other government agencies have subjected indigenous rights defenders to abusive surveillance and hacking, often by labelling them 'multi-issue extremists'.

Amazon's hiring machine taught itself to favour this 'baseline' applicant. It is easy to see how, depending on the data inputted, existing inequalities can be replicated in supposedly objective machine learning. For example, if the data draws from majority affluent white male applications, it may score the words 'lacrosse' or 'crew' higher and penalize resumés with words such as 'women's,' as in 'women's chess club captain'. It may equally undervalue extra-curricular activities perhaps more often mentioned among applicants from less affluent and/or minority backgrounds. Although Amazon abandoned its project in 2018, there are a number of automated resumé screening platforms in use on the market today, and certainly not all of them have checked their algorithms for bias. A 2018 survey by LinkedIn revealed that 67 per cent of recruiters and hiring managers globally rely on such tools to 'save time'.

Another example comes from job advertising, as prospective employers turn to the algorithm-based targeting of 'ideal' candidates. Again, depending

on the data upon which these machine-driven processes are trained, they can recreate bias. For example, a 2019 study conducted by the technology non-profit Upturn with Northeastern University in Boston and others found that targeted ads on Facebook for grocery cashier positions were shown to audiences of 85 per cent women, while taxi driver jobs were shown to audiences that were 75 per cent black. In a similar case, in 2019 the US Department of Housing and Urban Development (HUD) charged Facebook for violating the Fair Housing Act after it came to light that Facebook user data was being used to influence targeted housing-related advertising that was unlawfully discriminating 'based on race, colour, national origin, religion, familial status, sex and disability'. Training machine learning based on historical employment prejudices or economic and racial housing discrimination ensures their perpetuation. In other words, although such technologies were dreamed up to be disruptive or progressive, relying on supposedly unbiased algorithms to see past



A 2019 study found that targeted ads on Facebook for grocery cashier positions were shown to audiences of **85 per cent women**, while taxi driver jobs were shown to audiences that were **75 per cent black**.

discrimination in the recruitment process, they are just as likely to maintain or reaffirm an unequal status quo.

As seen with London's Gangs Matrix, predictive policing measures cannot be objective when the data they learn from is based on ethnic or other structural and historical biases. As Andrea Nill Sanchez, executive director of the New York University-affiliated AI Now Institute, testified before the European Parliament in February 2020, 'left unchecked, the proliferation of predictive policing risks replicating and amplifying patterns of corrupt, illegal and unethical conduct linked to legacies of discrimination that plague law enforcement agencies across the globe'.

One American company, PredPol, is deployed across the country and offers location-specific predictive policing solutions. Trained from years of recent crime data, it is based on the idea that criminal activity at a certain place is more likely to occur there again and concentrates police activity accordingly. However, this immediately becomes

problematic in light of historic over-policing in minority communities. In this case, machine learning based on data from over-policed neighbourhoods feeds an algorithm that predicts the need for more police presence, creating a discriminatory feedback loop. A recent study of predictive policing across England and Wales by the Royal United Services Institute (RUSI) likewise uncovered this problem of replication and amplification of discrimination. In many cases, such as with PredPol and the police departments it partners with, the lack of meaningful transparency between private and public entities makes it increasingly difficult to audit algorithms for bias.

Big data for predictive policing logically gives way to big data for predicting incarceration, with the same concerns of algorithmic bias based on a criminal justice system rife with institutional racism. In the US, pre-trial risk assessments performed by AI are taking place in nearly every state to determine matters such as the likelihood that the accused person will re-offend (known as their 'recidivism risk') or whether they will appear at trial. Such AI-driven decisions can, among other things, impact the chances or terms of bail, sentencing and parole. One such tool, COMPAS by Northpointe, was profiled in a 2016 investigation by ProPublica that showed that while the algorithm was correct over 60 per cent of the time, it also exhibited racial bias when it was wrong. Non-re-offending black defendants were twice as likely to be assigned higher recidivism rates than white defendants, whereas roughly 50 per cent of re-offending white defendants were assigned a lower



number. In other words, when it was wrong the algorithm thought black people were more likely, and white people less likely, to commit another crime. This has serious real-world implications on who is imprisoned and for how long, perpetuating extreme racial disparities in the prison system. Although Northpointe issued a rebuttal to the ProPublica study in which the company 'unequivocally rejects the ProPublica conclusion of racial bias in the COMPAS risk scales', there is still the underlying challenge to independent auditing.

With COMPAS, again, one of the obstacles to challenging learned bias and ensuring all defendants' equal due process rights is that Northpointe's algorithm is proprietary and not open to independent auditing. And while judges are often presented with the COMPAS readouts during hearings, this material is not always shared in full with the defendants or their counsel, which provided the grounds for the ultimately unsuccessful appeal in *Loomis v. Wisconsin* to the US Supreme Court in 2017. The ACLU and over one hundred other organizations in the US have called for an end to such pre-trial risk assessment tools.

These types of risk assessment algorithm are not only being deployed for domestic criminal justice systems. Since 2013 the US Immigration and Customs Enforcement (ICE) has relied on such tools to make immigration detention decisions. Shockingly, following President Donald Trump's nationalist stance on immigration, ICE has since changed its algorithm to now always recommend detention,

regardless of an individual's criminal history. This, in part, has contributed to the massive spike in immigration detention and human rights abuses at the US border. This is a reminder that the parameters of machine-learning algorithms themselves can easily be adjusted for political and discriminatory means against minority populations.

Another challenge is how data is collected and presented. Across Europe, anti-immigration populist movements and governments cite hundreds of thousands of migrants entering the EU, or the million or more asylum applicants each year, to stoke anti-immigration fears that lead to violence against minorities and the passage of restrictive laws or policies, such as iBorderCtrl. But in 2017 researchers in the UK noted the flaw in how such data is being generated and broadcast. Frontex, the EU's border security agency, can count the same person multiple times. For example, the migrant or refugee who arrived in the EU at Greece and left it to look for work in Albania, only to return through Croatia or Hungary, may be counted as two or more people entering the EU. Similarly, the presentation of asylum data is a reflection of the total number of applications across the EU and not the total number of individuals, and many asylum seekers may register in multiple countries. In these examples, the data used to inform machine-learning algorithms at borders or used in political campaigns or legislation can be flawed, and in an environment of structural bias against minorities such misrepresentation of data can fuel disinformation, hate speech and violence.

## When big data is drawn from existing systems of ethnic, gender or other inequalities the bias is replicated: bias in, bias out.

### The dangers of 'big data'

The challenges around surveillance and discriminatory algorithms are underpinned by the increasing availability of 'big data' – not only from official records and coercive intrusions by governments, but also indirectly through the surreptitious collation of microdata on issues such as travel patterns, smartphone usage and the like. This is an area where private corporations, rather than states themselves, often play a leading role, and are developing 'products' that may conceal agendas that have profound implications for human rights.

One area where these challenges of big data are on full display is the 'smart city', deemed smarter because it relies on an expanding network of interconnected devices, sensors and scanners to gather data on individuals and their environment, to adjust or report according to the relevant protocol. This is part of the Internet of Things, but for all its utopian ideals of maximizing environmental sustainability it can also produce a dystopian surveillance nightmare, as in Xinjiang. And as such, as the tech industry seeks to combine technology with urban planning, its pursuit of innovation appears to outpace solutions for privacy and other rights concerns.

Israel, a leading technology hub and world producer of surveillance tools, is also increasingly turning to smart city design in Jerusalem that, as digital

rights activists point out, increasingly reaffirm inequalities between Israeli citizens afforded privacy rights and due process and West Bank Palestinians who have few such rights. Meanwhile in Canada, Google's sister firm Sidewalk Labs has been developing Waterfront Toronto as a fully data-fuelled smart neighbourhood, but concerns over its human rights impact sparked the #BlockSidewalk movement. Canadian author and digital rights activist Cory Doctorow described it as a 'terrible idea to let vast, opaque multinational corporations privatize huge swathes of our city, webbing them with surveillance sensors and subjecting them to opaque, unaccountable algorithmic analysis and interventions'.<sup>16</sup> In May 2020, Sidewalk Labs scrapped the project due to the economic uncertainty in the wake of the Covid-19 pandemic. While the context in Toronto may seem very different to Jerusalem, there are still concerns around the implications of surveillance and discrimination: as highlighted by one commentator, after the cancellation of the project was announced, 'minority groups and people of colour face more threats from surveillance than majority groups, and a digital stop-and-frisk program could subject some people to more oversight than others'.<sup>17</sup>

In India, a Smart Cities Mission was launched in 2015 with plans to 'modernize' 100 cities by 2020, but the lack of consideration for all residents in the plans, especially for

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16 #BlockSidewalk website. Available at <https://www.blocksidewalk.ca/supporters>

17 Lachman, R., 'Sidewalk Labs' city-of-the-future in Toronto was a stress test we needed', Policy Options, 28 May 2020.



A man's face glows as he goes through a biometric turnstile on his way to Jerusalem at Qalandiya checkpoint, Palestine.

Eddie Gerald

already marginalized Dalits, Adivasis and religious minorities, demonstrates that 'smart' does not necessarily mean 'more equal.' As India's Housing and Land Rights Network (HLRN) noted in a 2018 report:

'With one in six urban Indians still living without adequate housing and access to essential services, and high rates of violence and crime being reported against women and children, especially belonging to Dalits or other minorities, in urban areas, a "smart city" cannot just be about installing seamless digital connectivity, or making physical infrastructure more efficient and reliable.'

In sensible advice for any would-be smart city planners around the world, HRLN cautions: 'When marginalized individuals, groups and communities are not at the centre of any scheme, it is unlikely that it will address their concerns and achieve inclusion and an improved

quality of life, as claimed in the Smart Cities Mission's objectives.'<sup>18</sup>

While South Korea's Songdo International Business District, a smart city built on reclaimed land from the Yellow Sea, may not avoid some of the concerns noted above, South Korea does offer a useful framework for would-be smart city developers. The country hosts the annual World Human Rights Cities Forum, which adopted the Gwangju Guiding Principles for a Human Rights City in 2014. The Gwangju Principles reaffirm the need to respect the principle of equality and equity among all residents, implement non-discrimination measures including gender-sensitive policies and protection for minorities and vulnerable groups, with human rights mainstreamed into all aspects of planning, implementation and monitoring. In other words, as technologies and big data create new tools, rather than merely embracing

18 Housing and Land Rights Network, *India's Smart Cities Mission: Smart for Whom? Cities for Whom?* (update 2018), Housing and Land Rights Network, 2018.



A 2017 study by Brookings found the income penalty for minority STEM PhDs taking on university employment in the US tends to be **US\$13,000 more a year** than for non-minority STEM PhDs.

digitization to make cities smarter we should be embracing these tools to make them Human Rights Cities. Online, big data and algorithmic bias is also a problem. In 2015, it was revealed that the Google Photos algorithm had labelled two black friends as gorillas. The company was quick to apologize, but the root of the problem remains across multiple tools where intersectional bias is even more pronounced and many online facial recognition algorithms are far more likely to falsely identify or match black women. The reason, it has been argued, is that 'the values of the web reflect its builders – mostly white, Western men – and do not represent minorities and women'.<sup>19</sup> This has a similar cause to the example of automated recruitment algorithms noted above, when big data is drawn from existing systems

of ethnic, gender or other inequalities the bias is replicated: bias in, bias out.

Big data is the driving force behind the growth of AI, and because it is increasingly affecting everyone's lives, says Adrian Weller of the UK's Alan Turing Institute, 'it is very important that we have a diverse set of stakeholders designing and building them'.<sup>20</sup> Unfortunately, as noted in a 2019 study by the AI Now Institute, 'there is a diversity crisis in the AI sector across gender and race', with no public data even available for trans or other gender minorities.<sup>21</sup> This lack of diversity is common across the whole science, technology, engineering and mathematics (STEM) field in general, but even more so at universities where the lack of diversity in STEM faculties can arguably be said to impact minority students choosing the field as a career path. A 2017 study by Brookings found one startling revelation: the income penalty for minority STEM PhDs taking on university employment in the US (rather than entering the private sector) tends to be US\$13,000 more a year than for non-minority STEM PhDs.<sup>22</sup> But this is only part of the issue. As presented above, bias can be intersectional and certainly one way of addressing the replication of this bias is to ensure more intersectional diversity in the big data workforce.

In China, the situation is worse. Uyghurs are largely prohibited from

19 Snow, J., 'Bias already exists in search engine results, and it's only going to get worse', MIT Technology Review, 26 February 2018.

20 Ram, A., 'AI risks replicating tech's ethnic minority bias across business', *Financial Times*, 31 May 2018.

21 West, S.M., Whittaker, M. and Crawford, K., *Discriminating Systems: Gender, Race and Power in AI*, AI Now Institute, 2019, p. 3.

22 Startz, D., 'Why is minority representation lagging among STEM faculty? It could be the money', Brookings, 15 December 2017.

We must protect against technology development creating new dependencies and inequalities, not only in terms of the ‘digital divide’ – put simply, the separation between the haves and have-nots of certain technologies – but also the more nuanced issue of ‘digital colonialism’.

even enrolment in STEM programs. This discrimination is part of China’s overall essentializing of ethnic and religious minorities, whereby their career and cultural place is relegated often to merely one of entertainment and food. While China proclaims its interest in becoming a world leader in advanced technologies, the denial of STEM education opportunities for Uyghurs guarantees their marginalization from any residual economic benefits that might be associated with even relatively innocuous technologies. Instead, Uyghurs have in fact been the principal surveillance target of many of these technologies. For these reasons, Uyghur students who wish to pursue academic studies in engineering or aerospace, for example, must seek opportunities abroad, such as in Turkey, but this also introduces a vicious cycle of repression: having a family member studying abroad has become reason enough to interrogate or detain Uyghurs in China.

Another problem is that as the industry expands to create new well-paying jobs, this lack of diversity reaffirms historical economic inequalities of employment sectors that already reinforce gender stereotypes and whose workers are predominantly drawn from minority communities. It becomes a vicious cycle, bad data feeding algorithms that shape real-world experiences, generating new bad data, and so on. In addition to greater diversity in

the workforce, legislation is needed to address algorithmic bias. In early 2019, the US state of Washington, home to companies like Amazon and Microsoft, introduced an algorithmic accountability bill that would establish guidelines for the procurement and use of automated decision-making systems. The lawmakers recognized the risks to ‘due process, fairness, accountability and transparency, as well as other civil rights and liberties’. A major provision of the bill would ensure that such tools employed by the public sector, such as pre-trial risk assessment programs in the criminal justice system, would be available before, during and after deployment for third-party auditing and research. Following such state-led legislative agendas, the US Congress has introduced the federal-level Algorithmic Accountability Act, which, if adopted, would task the Federal Trade Commission with the creation of rules for evaluating algorithms for bias or discrimination, including the datasets used to train machine learning.

Meanwhile, across Europe, many courts are finding that the human rights impacts of unchecked big data outweigh any potential benefits to the government. In February 2020, for example, a Dutch court in *NJCM v the Netherlands* shut down the country’s System Risk Indication (SyRI) system, which had relied on big data to predict benefit fraud. Many of its targets

had been ethnic and religious minority Dutch citizens who are more often among the poor and vulnerable groups of society targeted by such automated welfare systems. In 2019, Swedish and French data protection authorities fined and halted programs involving facial recognition systems to gather and process biometric data about student attendance. Such victories for the right to privacy in Europe are made possible by the General Data Protection Regulation (GDPR), which covers, among other things, an individual's right to receive information about the kind of data collected about them and how it will be used. While the GDPR is still in its infancy, along with the European Parliament's work in formulating a framework for algorithmic accountability,<sup>23</sup> Europe is leading the charge in addressing many of the concerns of big data examined in this chapter and setting standards that can hopefully provide models for protecting vulnerable minority populations elsewhere.

### **Reversing the trend: how technologies can be used to defend human rights**

This chapter has profiled a number of concerning trends at the intersection of technology and human rights, with particularly troubling implications for minorities and indigenous peoples. These are serious issues that require considerable research, legislation and tools to combat and remedy them. At the same time, many of these technologies are offering new connectivity, platforms and resources to improve livelihoods

and rights defence for many. But if these new tools and technologies are to be developed or repurposed for these objectives, then minorities and indigenous peoples must be informed and involved at every step, from design to implementation and evaluation. We must protect against technology development creating new dependencies and inequalities, not only in terms of the 'digital divide' – put simply, the separation between the haves and have-nots of certain technologies – but also the more nuanced issue of 'digital colonialism'. The latter raises a range of concerns – bound up in the technologies themselves, not simply their lack of availability – around power inequities, discrimination and the marginalization of non-majority voices. For instance, it is not enough to provide universal access to the internet; it is also necessary to ensure that the online world is safe, accessible and non-discriminatory for minorities, indigenous peoples and other groups.

An example of how this can be achieved is the development, since 2016 of a mobile application called #thismymob, by researchers at the faculty of Engineering and Information Technology at the University of Technology Sydney. The project, explains its director Christopher Lawrence, was born from the concept of 'postcolonial computing', and uses participatory design to create new digital technologies with and for indigenous peoples. Participatory design, explains Lawrence, 'ensures that the technology we design is culturally appropriate, and usable in

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23 European Parliament Research Service, *A Governance Framework for Algorithmic Accountability and Transparency*, European Parliament, 2019.



Victories for the right to privacy in Europe made possible by the General Data Protection Regulation (GDPR):

- In February 2020, in *NJCM v the Netherlands*, a Dutch court shut down the country's System Risk Indication (SyRI) system, which had relied on big data to predict benefit fraud. Many of its targets had been ethnic and religious minority Dutch citizens who are more likely to be among the poor and vulnerable groups of society targeted by such automated welfare systems.
- In 2019, Swedish and French data protection authorities halted and fined programs involving facial recognition systems to gather and process biometric data about student attendance.

a wide variety of communities and contexts. ... We recognize that having indigenous leadership on research and development projects is fundamentally important.' The platform, which was developed taking intersectional identities of region or gender into account, allows indigenous users to connect with elders around the country for guidance and support – for example, encouraging indigenous students to pursue careers in STEM or facilitating artists to promote their work to both indigenous and non-indigenous communities.<sup>24</sup>

The Human Rights Investigations Lab at the University of California Berkeley engages in multidisciplinary practicums to prepare students to mine social media for documentation of human rights violations. The lab has partnered with leading international human rights organizations and media. For example, an explosive 2018 report by Reuters on hate speech in Myanmar was based on efforts by the lab to collect and translate over 1,000 social media posts involving hate speech against Rohingya. They have also overseen investigations into Sudan, Syria and

elsewhere. Much of the lab's research is based on open source material, and the lab is also working to develop an international protocol on open source investigations. Its methods can be employed by anyone, and by demystifying and disseminating such skills beyond the university setting it creates a toolkit for minority and indigenous activists to increasingly employ technology themselves in their rights defence. Human rights organizations like WITNESS have also developed new tools and training for rights defenders to better document and disseminate human rights concerns on social media.

Researchers are working on how machine learning, too, could be exploited for positive human rights outcomes – for example, by developing algorithms to process large amounts of social media or video content in order to flag hate speech or evidence of human rights abuses. Blockchain, perhaps better known as the technology behind cryptocurrency (which has also attracted criticism for its potential use in illicit transactions), allows for the establishment of

24 Lawrence, C., "Digital land rights": co-designing technologies with Indigenous Australians', *The Conversation*, 31 July 2018.



A Rohingya woman living in a refugee camp in Cox's Bazar, Bangladesh.

*Credit: Ramazan Nacar*

anonymized, secure and decentralized networks, and also has human rights applications. For example, video evidence or other social media content that reveals human rights abuses against minority or indigenous populations could be verified and entered into dedicated blockchain networks, creating decentralized, open source, tamper-proof pools of big data, potentially useful for anything from advocacy to international litigation.

AI is also being developed for human rights applications. In 2016, AI research at the University of Sheffield in the UK and University of Pennsylvania in the US trained an algorithm on trial data from the European Court of Human Rights to predict judicial decisions with 79 per cent accuracy. Rather than falling victim to some of the concerns of machine learning noted above, such algorithms at regional or national courts could be used to help human rights lawyers better prepare their cases

before submission and increase the effectiveness of human rights litigation.

Another example of the innovative use and increasing ease of access to technologies once reserved for governments and militaries is the benefit of satellite imagery in documenting the scale of mass internment in Xinjiang. Throughout 2018 in particular, Shawn Zhang, a graduate student at the University of British Columbia law school, relied on open source satellite imagery to document multiple large-scale internment camps across Xinjiang at a time when the Chinese government was still categorically denying their existence. The research of scholars like Zhang or human rights organizations such as Fortify Rights and HRW, which have also used satellite images in documenting the forced displacement of Rohingya in Myanmar, demonstrates how technology can provide unequivocal evidence of



gross violations against minority or indigenous populations even in areas where the majority government refuses independent access and fact-finding. Such data is valuable for human rights documentation as well as later accountability and transitional justice mechanisms.

Meanwhile, digital security remains at the frontline of risk and protection for minority and indigenous rights defenders and their allies. And here, again, the risk analysis and design of new tools must be conducted with the full consent and participation of minority and indigenous stakeholders. End-to-end encryption, for example, should be a fundamental right because in a digital age it is one of the bulwarks against infringement of the freedom of expression, association, assembly, and the right to privacy, not to mention real-world ramifications. Meanwhile, even the best encryption or strongest passphrase is ultimately meaningless if a computer or mobile device is compromised, as seen above with the NSO Group hacking of WhatsApp. Additionally, police and state agents in many regimes seldom hesitate to use physical force such as torture or threatening one's family members to extract information including passphrases. Digital security without physical or psychological security is not enough, and this has given rise to the concept of holistic security. This is one area of digital rights and security, among many, that is still at risk and remains crucial to the protection of minority rights. Groups such as the Guardian Project, EFF, Tactical Tech Collective and others continue to work with frontline rights defenders to develop new tools and holistic security routines, adapting to the digital age.

## Conclusion

What these examples demonstrate is that, while some technologies may raise particular concerns, first and foremost it is the governance and protections around them that are likely to impact most directly on minorities and indigenous peoples, for better or worse. This is illustrated by the challenges around monitoring negative content about minorities and indigenous peoples online. While the dangers of hate speech and misinformation are very real, contributing to the continued exclusion of many communities and even to physical violence against them, restricting freedom of expression and undermining privacy rights in the name of preventing hate speech – a tactic employed by many authoritarian governments to justify internet shutdowns and other draconian policies – is no solution. Indeed, more often than not, such measures serve only to further silence and disenfranchise the groups most at risk.

Since many of the technologies discussed in this chapter are new and constantly evolving, further research, documentation and the formulation of dedicated guidelines to ensure minority and indigenous rights within their design and implementation will be of long-term benefit. It should not be assumed, fatalistically, that protection regimes will never be capable of catching up with technological developments. In fact, international human rights law is already highly capable of guiding these technologies and protecting minorities and indigenous peoples in the digital age. If even existing human rights law were better applied, we might find the need for new rules and guidelines were largely redundant.

Though many governments have clearly been directly complicit in using technology to perpetrate human rights abuses against minorities and indigenous peoples, an added issue here is that technological design, development and roll-out involves an increasing array of non-governmental actors, including corporations and research institutions. These independent organizations are often vested with considerable powers to guide decision-making in areas such as law enforcement, migration management and welfare provision – traditionally the preserve of governments – without many of the oversight, accountability or regulatory protocols that would be applied to public bodies as a matter of course. What is needed, then, is far better transparency at every stage, not only in the design and implementation of these products, but also in how companies make their rules for oversight and decision-making. This means, for example, that companies need to disclose when and how they work with governments, as well as what information they collect and share. In addition, there must be means for effective challenge or remedy for these decisions.

Technology alone, however well-designed, will not address underlying societal injustices, and in many cases may in fact perpetuate or worsen inequalities for minority and indigenous communities. Just as human rights law should govern the design and implementation of new technologies, so too should it govern broader social norms and the increasing integration of technologies into our lives. Some basic principles to support this process include:

- *Uphold freedom of expression and information as a 'default setting' for the use of any technologies.* International law is unequivocal that freedom of expression and information can be restricted only under the most extreme circumstances, and that any restrictions should be prescribed by law, pursue a legitimate aim, and be necessary and proportionate. However, many government efforts to regulate speech online have failed to meet these standards. In particular, the increasing use of internet shutdowns by authorities to quell dissent should be seen not only as vehicles for human rights violations, but as violations in and of themselves.
- *Ensure that the highest standards of corporate responsibility are imposed on those working in areas of technology with potential human rights impacts.* In particular, the use of private-public partnerships for predictive policing or surveillance-based security systems should not enable governments to outsource their human rights responsibilities to opaque and unaccountable institutions. Private companies working in sectors with potential impacts on human rights protections should be held to the highest standards on issues such as transparency, due diligence and public regulation.
- *Streamline human rights law more effectively into the development, use and delivery of new technologies.* While the evolving nature of some emerging technologies may require new

legislation and frameworks, it is important to recognize that there is a wealth of existing human rights law that, if effectively implemented, could support the realization of a more inclusive and socially beneficial future. For instance, in the case of private actors, the UN Guiding Principles on Business and Human Rights call on businesses to prevent and mitigate the actual and potential human rights abuses associated with their business practices, and to conduct regular, effective, independent human rights impact assessments of all their operations. This is increasingly necessary for technology companies and internet providers.

- *Impose clear guidelines on the ethical, non-discriminatory use of personal data by companies, governments and other actors.* While the historic lack of disaggregated data for minorities and indigenous peoples has been a major barrier to their efforts to secure adequate

political representation, public spending and other rights, it is important that the opportunities offered by the latest 'smart' data-collection tools are used in a rights-based framework that respects privacy and non-discrimination. The potential opportunities of AI and big data to increase visibility should not be undermined by excluding individuals or communities from particular benefits or services through the use of discriminatory or biased algorithms.

- *Establish clear principles of accountability for any decision-making assisted by AI, algorithms and other technologies to ensure that the rule of law is upheld.* In particular, any negative decisions involving predictive policing, parole and immigration that lead to continued incarceration, visa rejections, deportation or detention should be followed up by an appeals process overseen by a human adjudicator.

# Empowering minorities and indigenous peoples through technology

Nicole Girard

*Advances in technology are revolutionizing the ways in which communities and advocates work to realize indigenous and minority rights. Despite the many ways that technology is being used to reinforce and exacerbate inequality – through, for example, surveillance and discriminatory artificial intelligence – civil society is using the same tools to decentralize power and to destabilize established systems of oppression.*

From monitoring human rights abuses through satellite imagery to designing mobile applications which continue traditional knowledge reproduction, creative technological adaptations have upended long-standing hierarchies by mobilizing successful movements in order to bring human rights violations out into the open.

This chapter outlines some of the ways that technologies are being used and adapted to support the realization of greater rights for marginalized minorities and indigenous peoples. Drawing on examples of online activism, citizen-led data initiatives and the innovative ways in which traditional knowledge is combined with new applications and software, it shows

that, with a rights-based approach, technologies can bring a wide range of benefits to communities – even in sectors such as the digital gaming industry which, similarly to the film industry, has been characterized by discrimination in its storylines and character representations.

## **Online activism and social media campaigns**

The use of the internet and social media platforms has been one of the defining features of this new era, enabling contemporary activists to secure visibility for historically marginalized groups and to transform ordinary citizens into journalists, rapporteurs and human rights advocates. Yet, at the same time,



Demonstrators gather in front of the White House during protests resulting from the police killing of George Floyd. Credit: Hosein Fatemi / Panos

social media is increasingly being used by states as a tool to spy on and to manipulate the work of activists or even whole minority populations. These tactics, at their most cynical, can see movements co-opted for use in proxy wars between states. One notorious case of this is the way in which the prominent 'Blacktivist' and other seemingly progressive social media accounts have been traced back to Russian operatives, with the suspected intention of inciting racial discord in the United States (US) in the build-up to the 2016 elections.

While the desire to infiltrate and co-opt social movements is nothing new, technologies are providing new arenas for this struggle, and these have been

met with equally creative and diligent responses from civil society. The example above, in fact, was specifically intended to piggyback on the very real achievements of a genuine grassroots campaign, Black Lives Matter. If imitation is indeed the highest form of flattery, then the attempts by various repressive states to co-opt online movements in order to promote their own views must represent an awareness that such grassroots networks represent a potential threat to their power. For governments which have long enjoyed an unchallenged monopoly on mainstream media and political expression, these innovative platforms have provided their dissenters and victims with an opportunity to reach large audiences and publicize their views.



Three days after George Floyd's murder, **#BlackLivesMatter was tweeted 8.8 million times in a single day.** During the following two weeks, the hashtag was tweeted **nearly 3.7 million times a day** on average.

*United States: Black Lives Matter*

The Black Lives Matter movement, one of the most powerful social movements in the US since the civil rights era, has proven that social media has an overwhelming power to draw attention to issues that have been ongoing for decades – if not centuries – but have generally been overlooked, ignored or deliberately covered up. Through the widespread availability of smartphone cameras and pervasive social media use, citizens have been able to film and broadcast police brutality and tell the stories that need to be heard themselves, without any intermediaries. Armed with this evidence and propelled by the acquittal in July 2013 of Trayvon Martin's murderer, George Zimmerman, the #BlackLivesMatter hashtag became a rallying call and organizing force against continued systemic and violent racism by the state, particularly in law enforcement and the justice system. According to the Pew Research Center, by May 2018 the #BlackLivesMatter hashtag had been used almost 30 million times on Twitter, an average of 17,000 times a day.

At the time, this was viewed as a remarkable sign of the #BlackLivesMatter hashtag as a mobilizing force. Use of the hashtag has increased drastically since the brutal killing of George Floyd in police custody on 25 May 2020, catalyzing millions of activists first in the US and then worldwide. According to a further Pew Research Center study, three days after Floyd's murder, #BlackLivesMatter was tweeted 8.8 million times in a single day. During the following two weeks, the hashtag was tweeted on average nearly 3.7 million times a day. The impact is a powerful rejoinder to those who have questioned the potential of online activism to deliver substantive change: the success of this awareness raising on social media was instrumental in driving public demonstrations in cities across the world.

The question of power, control and access to these technologies is also crucial here. In the 1960s, the civil rights movement used the power of television to bring violence against black people in the homes of all Americans. However the power to set the narrative still remained in the hands of the white media, in what they chose to cover and how they chose to frame the discussion. Even the civil rights movement itself rested in the hands of its (largely male) leaders and spokespersons who then spoke on behalf of the people. Social media has enabled that system to be turned on its head, with a less hierarchical, decentralized system of activists who can speak for themselves and inform a wider network. The hashtag #BlackLivesMatter has created a platform for discussion, awareness-raising and collective action by a wide range of organizations that

brings the issues of racism back to the (white) mainstream, while putting the spotlight on corrupt prosecutors, police brutality and the urgent need for criminal justice reform.<sup>1</sup> As Opal Tometi, one of the original co-founders (together with Patrisse Cullors and Alicia Garza) of the Black Lives Matter movement, said, in a June 2020 *New Yorker* profile: 'There are chapters across the country, many of them are operational and do their own fund-raising, and make their demands.... So different chapters might take on different issues, but there is this throughline of valuing black life and understanding that we are not a monolith but being radically inclusive in terms of chapter makeup.'

As the activist Ashley Yates further explained, the civil rights movement had previously defined by 'the singular figure model of black liberation – which was often a man in a suit, at the top, and having him be the microphone for people.... We didn't realize it didn't work until we saw what happened, and they repeatedly killed that leader. It took the wind out from under a movement.'<sup>2</sup> Social media has opened up space for those who have been historically marginalized within the civil rights movement, such as women and LGBTQ+ people. #SayHerName is one such example. It was created by the African American Policy Forum in 2015 to campaign alongside the Black Lives Matter movement with a focus on a gender-inclusive approach to racial justice and to draw attention to black cis- and transgendered women's experience of state violence. This diffusion of power and representation

has resulted in more fluid decision-making structures, with affiliated activists able to define their priority areas and join forces with other allies, as in the support offered in 2016 by Black Lives Matter members to indigenous Standing Rock #NoDAPL activists who were protesting the Dakota Access Pipeline (DAPL).

Of course, this is not to say that social media platforms have been able to banish the hostility and racism which is evident in the offline world. Far from it: the same platforms that have driven the inspiring activism of Black Lives Matter have also served as vehicles for extremists and hate groups to threaten, vilify and abuse minorities, indigenous peoples and those who support their calls for justice. Activists can spend much of their time blocking or reporting threats and racist slurs – a reminder that the struggle to ensure the internet is a safe and respectful place for all will never end.

*Papua, Indonesia: Digital forensic investigation reveals pro-government bot network*

Having witnessed the successes brought about by social media movements, various governments, corporations and other actors have then been caught manipulating these trends for their own ends. While the 'Blacktivist' case mentioned earlier involved a foreign government attempting to exploit social divisions in the US, the Indonesian government has been accused of running a deceptive online campaign to manipulate international support for the Free Papua movement,

1 Roberts, F.L., 'How Black Lives Matter changed the way Americans fight for freedom', ACLU, 13 July 2018.

2 Parker, E. and McIlwain, C., '#BlackLivesMatter and the power and limits of social media', *Medium*, 2 December 2016.



Papuan students protesting racism, calling for independence for their territories and an end to an internet shutdown in Papua.

*Albert Ivan Damanik*

— a decades-old independence movement that regards the Indonesian government as colonial aggressors.

From August 2019, massive protests began to spread across the Indonesian provinces of Papua and West Papua in response to the arrest of 43 ethnic Papuan university students in East Java for allegedly 'disrespecting' the Indonesian flag. The government deployed over 1,000 military personnel in the streets of Papua and ordered an internet shutdown in the region. While the protests were sparked over accusations of racism, the events triggered renewed calls for Papuan independence, focusing on grievances over an unimplemented autonomy law, continuing militarization and widespread poverty in the resource-rich province.

The violent protests and the heavy military response were accompanied by a strategic, well-funded social media campaign that spread pro-government propaganda, according to a joint report by researchers at the BBC and Bellingcat, an organization that has pioneered digital forensic investigations. Given the internet shutdown and a ban on foreign journalists travelling to Papua, it is difficult to report on events in the region. Some of those who released videos from the protests, such as Indonesian human rights lawyer Veronica Koma, were targeted by online disinformation and hate campaigns. Nevertheless, investigators noticed that pro-independence hashtags such as #FreeWestPapua, #WestPapuaGenocide, #WestPapua and #fwpc were being 'hijacked' by pro-government posts: these typically reported on generous financial assistance to the Papuan provinces, a lack of support for independence among West Papuans, and the inaccuracies or malicious misrepresentations of foreign media coverage on the situation in the region.

The team traced the digital footprint, focusing first on suspicious Twitter accounts. Following two specific Twitter hashtags, #WestPapua and #FreeWestPapua, from 29 August to 2 September 2019, they built an itemized dataset of the usernames that used these tags, retweeted or liked the posts, the post time-stamps, URLs and type of activity (tweet, retweet, quote or mention). Data was then imported into the open-source visualization platform Gephi and transformed into a graphic visualization that revealed abnormal Twitter activity suggestive of automated accounts, or 'bots'. Three key markers identified the accounts as bots: Google



reverse image searches revealed that most of the profile photographs were fake, originating from elsewhere on the internet; the accounts did not interact and were used exclusively for posting or spreading pro-government content; and the patterns and timing of posting suggested automation through synchronization. The Twitter accounts were linked to Facebook, Instagram and YouTube accounts that disseminated the same content. Under the Transparency tab on any given Facebook page, information is provided regarding the page's creation date, location and whether they are running paid Facebook ads as well as the ads' targeted locations. Most of them were targeting European audiences, and slandering the pro-independence movement.

After the team's lead researcher Benjamin Strick published some of his findings on *Medium* and *Bellingcat*, Facebook announced it had found evidence of 'coordinated inauthentic behaviour', subsequently closing 69 Facebook accounts, 42 Pages and

34 Instagram accounts. Facebook revealed that the account-holders had spent US\$300,000 in their efforts and traced them to Indonesian media firm InsightID. The investigation shows how social media is becoming an international battleground over competing narratives relating to minority and indigenous peoples' rights, but that careful digital forensic examination of disinformation tactics using open verification methods can restrict these efforts.

#### *Xinjiang, China: Uyghur digital flash mob*

While Indonesia maintains a relatively free internet space, activists in other parts of the world are showing how online resistance can still continue in even the worst-case scenarios, where human rights abuses are now being bolstered by the most advanced technologies. Xinjiang, also known as East Turkestan, is the homeland of the ethnic Uyghur Muslim minority that is currently enduring a massive forced assimilation programme by the Chinese state. Advanced

### THREE KEY MARKERS IDENTIFIED THE ACCOUNTS AS BOTS:

1. Google reverse image searches revealed that most of the profile photographs were fake, originating from elsewhere on the internet.
2. The accounts did not interact and were used exclusively for posting or spreading pro-government content.
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surveillance techniques are the defining characteristic of the program, with popular messaging applications like WeChat being used to spy on any Uyghur accused of 'undermining the Chinese state' or participating in 'radicalized Islam' – vague, catch-all terms which are used to justify arbitrary monitoring and forced disappearances.

WeChat became extremely popular among Uyghurs after the government installed 3G networks in the region in 2011, offering them a virtual space to develop their arts, music, culture and religious expression unmolested as the wider online world became increasingly policed by the Chinese government. It is estimated that by the end of 2013, around 1 million Uyghurs were using the app. At that time, the use of Arabic script made it more difficult for Chinese censors to monitor, and much of the communication was done as audio clips or script embedded over images in memes. After the state began implementing its 'Strike

Hard against Violent Terrorism' ethnic assimilation campaign, posting or sharing any content relating to Uyghur or Muslim culture could put one at risk of being sent for 're-education' in one of the de facto internment camps that are now estimated to hold 1 million Turkic Muslims (mostly Uyghurs but including other ethnic Turkic groups).

In early 2017, it was still possible for the diaspora Uyghur community to communicate with their families via WeChat, but this was an extremely high risk for those still in Xinjiang, who were hesitant to discuss anything about their situation or the widespread forced disappearances being carried out by Chinese authorities. As a result, families began to communicate via code. For example, if someone was jailed, they would say 'admitted to hospital'. Eventually coded emojis began to be used: a wilted rose meant that someone had been arrested, a dark moon meant they had been sent to the camps, a sun that they were still alive, a flower that they had been released. Eventually, though, by the end of 2017, those in the diaspora were being deleted from their families' WeChat accounts as people began to go incommunicado.

Xinjiang is now one of the most tightly controlled information environments in the world. There are severe restrictions on journalists and region-wide blocks on Facebook, Instagram and Twitter. One of the few remaining social media apps in Xinjiang is Douyin, the domestic Chinese version of TikTok. TikTok has been downloaded 15 billion times worldwide and is mostly popular among youth as a place where they can post short videos set to music. Those inside China must access it through its firewalled version, Douyin.



In early 2017, communicating to the diaspora community via WeChat was high risk for Uyghurs in Xinjiang. Families began using coded emojis: **a sun meant they were still alive.**



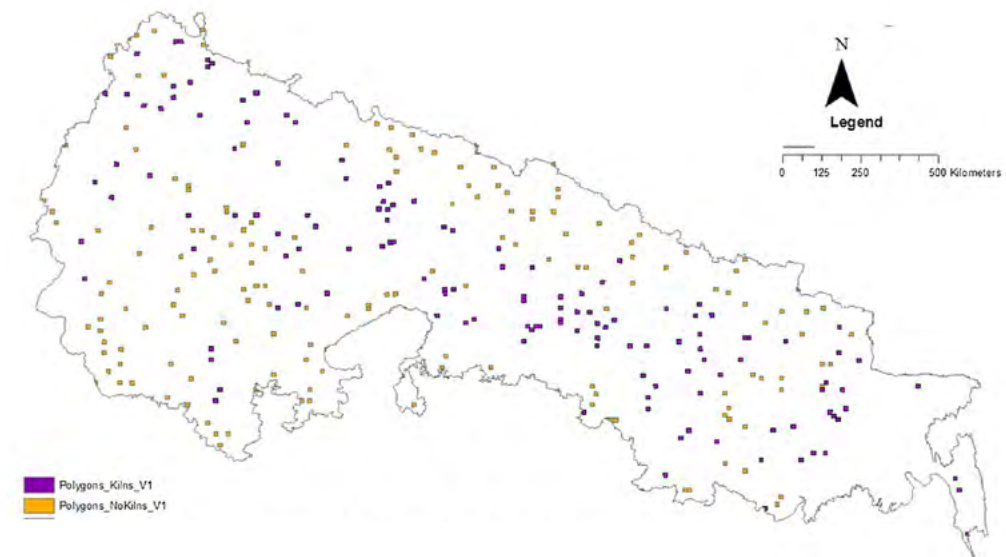
It is one of the few social media apps available in Xinjiang and can only be accessed outside of China with a Chinese mobile phone.

At the end of July 2019, a senior Chinese official announced that 90 per cent of detainees had been released from the detention camps and 'returned to society'. Diaspora Uyghurs were incensed and baffled, as still no news of their relatives and friends had yet surfaced. A couple of weeks later, a series of eerie videos began to be posted on Douyin, in what seemed to be a digital flash mob silent protest over the government's claims. Each video is only a few seconds long, showing the subject standing silently or softly crying and superimposed over pictures of loved ones, all set to a mournful sounding song called 'DönmeK', which means 'return' in Turkish. Nothing in the video is explicit, but it is assumed that the pictures in the background are of their missing loved ones. One woman holds up four fingers, as if to express the four men in her life pictured in the background, and slowly makes a fist.

The videos are the only sign of coordinated non-violent resistance to come out of Xinjiang in years, and have spread to the outside world despite a firewall that is effectively working to keep the world out of China (as well as to keep those in China in). Uyghur activists outside China such as Arslan Hidayat, who monitors Douyin for evidence of forced assimilation, have reposted dozens of videos for the world to see via Facebook and Twitter with the hashtag #WeHearU. The ambiguity and high volume of the videos seems to have enabled them to bypass state content monitors. Within days of being posted, though, the accounts had been shut down or videos deleted. Another Uyghur activist commented, 'These people are incredibly brave because they know the risks they are taking. I'm afraid that the people in these videos might be arrested, especially with the facial recognition technology that China is already using to monitor the Uyghur population.' Despite massive internet surveillance, information control,

Screenshots of videos on TikTok showing videos of Uyghurs silently posing with photos of detained relatives.

*Foreign Policy*



Randomly Sampled Brick Kiln Locations and Sample Areas within the extended Brick Belt

Source: <https://www.sciencedirect.com/science/article/pii/S0924271618300479>

firewalls and threats to their personal safety, people still find ways to circumvent oppressive technology for their own forms of creative protests.

### Open-source investigation to document human rights abuses

Open-source investigation is a methodology that has been revolutionized by the vast amounts of publicly available digital data such as posts on social media platforms and geospatial satellite imagery. Its techniques can be particularly effective in areas of the world that are inaccessible due to war or tight restrictions on civil society by authoritarian governments and regimes. The rapid expansion in the use of open-source investigation techniques has been credited to the increase in the use of smartphones with 3G/4G connections with which to record human rights violations, a concentration of social media platforms where information can

easily be shared and freely accessed by the rest of the world, and public access to remotely sensed data.

The legitimacy of evidence gathered and verified through open-source techniques is increasingly recognized by governments and human rights bodies. In 2017, the International Criminal Court (ICC) issued its first ever indictment for war crimes based exclusively on evidence gathered through social media (relating to mass executions around Benghazi, Libya). These and other increasingly specialized techniques are being utilized by a variety of civil society organizations to investigate and publicize human rights abuses against minorities and indigenous peoples.

#### South Asia: Identifying brick kilns using geospatial technology

The 'brick belt' is a vast area stretching across Pakistan, northern India, Nepal and Bangladesh, with thousands of functioning brick-making factories, employing between 10 million and 23 million workers. There are endemic

levels of debt bondage slavery in the brick factory system and most of these bonded workers are from either Dalit or other marginalized communities. The prevalence of these factories is notoriously difficult to quantify, as they flourish beyond the reach of civil society and law enforcement agencies. The pioneering Slavery from Space initiative by the University of Nottingham Rights Lab is the first attempt to engage geospatial observation to assess the extent of slavery by developing, through a statistically robust estimate of the number of brick kilns, a proxy estimate of the number of slave labourers at these kilns. Their research was facilitated by three key technological advances – publicly available fine spatial resolution satellite sensor data, crowdsourced citizen verification and advanced machine learning applied to image classification – all of which would have been impossible just a decade ago.

Brick kilns can be identified using satellite imagery due to their distinctive shape and the spatial organization of the surrounding area: oval or circular tracts, sometimes 150 meters long, often with a tall chimney in the middle. The kilns may be surrounded by clay fields where the raw material is gathered. The initial stage of the project, conducted in 2017, used crowdsourced human ‘visual searchers’ to manually make these identifications in a 250 km<sup>2</sup> select target area in Rajasthan, India. Volunteers were gathered through citizen science web platform Zooniverse and received a large influx via social networks promoted through *New Scientist* magazine. Fifteen volunteers were required to view and tag each of the 396 image extracts, which, finally, were verified by the lead researcher to comprise the ‘ground truth’, the final calibration of the remotely sensed data.

A labourer carries bricks in a kiln in the ‘brick belt’ of South Asia.  
 REUTERS/  
 Ranita Roy



Machine learning algorithms, known as deep learning classifiers, were then trained using the human-identified samples, which the team claims could identify the brick kilns in a given area to an overall accuracy of 95 per cent. The methodology can then be replicated and adapted for other contexts and is already informing the work of local civil society organizations. The team has also made headway in identifying slavery in shrimp and fish processing plants in Bangladesh, and plans to use satellite infra-red capabilities to detect illegal mining operations as the unearthed minerals produce different reflective qualities. Even then, the link between slavery and the data produced by satellite needs to be verified on the ground. 'What we are driving toward,' explained Doreen Boyd, director of the data programme at the Rights Lab, 'is the fact that people who carry out slavery activities can't hide. It's a methodology that you can't hide from.'<sup>3</sup>

*Palestine: Reconstructing human rights abuses through 'forensic' data analysis*

Forensic Architecture (FA) is a research agency based at Goldsmiths, University of London, which is pioneering the use of 'counter-forensic' investigative techniques to reconstruct the sites of human rights abuses. Using new and emerging technologies, as well as analytical tools that until recently were only in the hands of states and their intelligence apparatuses, FA pieces together evidence from a variety of sources, including crowdsourced videos, social media posts and remote sensing data, and then using architectural modelling techniques

to spatially organize the evidence through digital modelling, animation, video synching and mapping, as well as other more revolutionary evidence-gathering methods such as smoke plume analysis. As FA director Eyal Weizman explained to *WIRED* magazine, 'The concept of testimony is being completely reformatted. Usually, human rights organizations have to wait days, even months, and collect things from memory. But these are testimonies of people who were there, technological testimonies through their cameras and videos.'

Much of FA's continuing work has focused on Palestine, a quintessential example of how military technologies, including advanced weaponry, surveillance, drones and satellite imagery, have been used heavily against the civilian population as tools of control. FA's continuing work there represents a disruptive attempt to use similar technologies to counteract state oppression. In 2018, they teamed up with the *New York Times* (NYT) to investigate the 1 June 2018 killing of Palestinian medic Rouzan al-Najjar, apparently shot by an Israeli sniper bullet while providing assistance to protesters. The 2018 protests in Gaza against the continuing blockade by Israel were the largest in recent history and resulted in the killing of hundreds of protesters and wounding of thousands of others by Israeli forces, using live ammunition. The Israeli authorities, however, claimed that all shots fired were through the precise identification of a target that posed a direct and imminent threat.

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3 The Rights Track, 'Modern slavery: a human rights based approach', 17 July 2018. Podcast available at: <http://rightstrack.org/modern-slavery-what-can-we-count-and-how>

In order to assess the validity of these claims, FA created a digital landscape of the site from drone footage taken by the *NYT* team, and used photogrammetry software to make a precise measurable 3D model from over 1,000 photos and videos from the day of the protest. Using the sound of the gunshot, the video clips were synchronized, and through camera tracking and Cinema4D software they were able to digitally plot the rotational movement of the various cameras against a common horizon. Then, the team utilized a panoramic stabilization technique from still images and mapped the composite panorama into a 3D model using open-source software Blender. This comprehensive 3D model showed the general density of the crowd, the positioning of the eight medics present, and established a likely 'cone of fire,' tracing the trajectory of the single bullet to a sand berm on the other side of the border fence where three Israeli personnel were located. This model, along with 30 witnesses who were interviewed for collaborating evidence, pointed to a single bullet that ricocheted off some rocks, hitting one medic in the leg and another medic with its shrapnel, before continuing its trajectory to hit and kill Rouzan al-Najjar, in an act summarized by the *NYT* as 'reckless at best, and possibly a war crime.'

FA's findings directly contradicted Israel's claims that only protesters who posed an immediate threat were targeted. FA's model clearly showed that there were eight medics among the protesters, none of whom were posing an immediate threat and who were at a significant distance from the border fence. After Rouzan's death, Israel engaged in a smear

campaign to deflect responsibility for her killing, but later the Israeli Defence Force's Military Advocate General reportedly ordered the Military Police Investigation Unit (MPIU) to carry out a criminal investigation into the killing. Yet no recent update on the case has been released, and civil society activists have noted that MPIU investigations often fail to hold anyone accountable for such crimes.

As state abuses against Palestinian civilians have been ongoing with impunity for many decades and received with very little in the way of official investigations, the irrefutable data provided by FA's analysis represents a unique step towards ensuring accountability. FA has gained traction applying these and similar methodologies in other parts of the world, including an analysis of the impact of oil and gas extraction on indigenous Mapuche communities in Argentina, uncovering proof of a historic genocide in Quiché, Guatemala and analysing cases of police killings of African-American men in Chicago, US.

### Traditional knowledge and smart technologies

Indigenous peoples have been evolving and embracing technology for millennia. The digital revolution is no different. There is a prevailing mainstream idea that tradition and technology are at odds with each other, a notion influenced in part by the preference of some indigenous communities for their communal knowledge, developed over centuries, instead of assimilationist or environmentally destructive notions of 'progress'. This perspective not



Indigenous peoples represent only **2 per cent** of the game industry, and only **27.8 per cent are female, transgender or another gender identity.**

only overlooks the inequalities and abuses that have accompanied the introduction of certain technologies to these populations, often as part of a broader programme of dispossession, but also the long history of indigenous technological innovations being co-opted by non-indigenous populations, including the canoe, kayak, toboggan and snowshoe, quickly adapted by European settlers and used to colonize Canada.

In sum, indigenous peoples and other marginalized groups do not fundamentally have a fraught relationship with technology. Rather, underlying power dynamics, including those stemming from discrimination or poverty, create barriers to access that can disadvantage whole communities. Indeed, when technologies are available on their terms, not as tools of repression but rather of empowerment and community, indigenous peoples have demonstrated how they can be combined with traditional knowledge to address a wide range of challenges, including climate change.

*Canada: Helping Inuit hunters by bridging traditional knowledge with smartphones*

Indigenous Canadian communities, however, are overturning these assumptions and showing how digital technologies can be utilized to continue their traditional ways of life and to refine, store and share their knowledge systems. In the words of Inuit hunter Peter Kattuk, 'It's time for the harpoon and the computer to work together.' The Indigenous Knowledge Social Network (SIKU) smartphone application, launched in December 2019, is doing just that. Named after the Inuktitut word for sea ice, the app was developed by Nunavut civil society organization Arctic Eider Society with funding from the 2017 Google.org Impact Challenge. The app primarily addresses Inuit communities' need to be informed about sea ice conditions while hunting or travelling, as well as documenting and sharing detailed traditional knowledge and language between community members, in a way that can engage the younger generation yet also leverage the power of the crowd.

The climate crisis has made predictions of sea ice more difficult for Inuit hunters. If they identify a dangerous type of sea ice, mainstream social media like Facebook may be able to share that information, but it is restricted to the hunter's own network, does not allow for GPS mapping of the location, and is soon lost in the barrage of the recipients' newsfeeds. SIKU however allows for geotagging of locations with symbols to correlate the data with indigenous knowledge of sea ice. For example, one hunter



identified a type of sea ice that looks like a normal tidal crack but can break open if the wind is strong. After they had tagged the location, in a couple of hours the satellite imagery available in the app showed that the ice had in fact broken apart, making return to the other side of the ice impossible. Hunters in the area using the app would have been made aware before the conditions posed a risk to their lives.

SIKU was created to maintain the feel of a social network, but with specialized features for Inuit hunters. It has four main types of posts: 'social', 'wildlife,' 'sea ice' and 'tools'. Place names can be tagged in multiple dialects and act as 'living wikis of indigenous knowledge'. Users can track wildlife sightings and other unusual circumstances that are identified by Inuits' intimate knowledge of their lands and species habitats. 'Tools' brings data collection a step further with the ability to capture data with scientific instruments, such as water or ice core samples. This knowledge is especially crucial for locally based climate change monitoring, helping to inform the community of its impact while providing for collective approaches towards adaptation. The app's specialized privacy settings also ensure that the rights of its indigenous users to their traditional knowledge remain protected – an important feature given the fact that much indigenous technology in the form of knowledge and intellectual property continues to be expropriated by corporate interests and other mainstream groups to this day.

### *Addressing discrimination in digital games through 'indigenous self-determination'*

Digital games have been an arena of contestation over fair access to technology, and particularly over how a lack of participation in the design and marketing phase of games has resulted in heavily racist and gendered stereotypes that continue to be perpetuated – especially with regard to North American indigenous peoples. The digital gaming world is stereotypically the domain of white men, designed by and for a white male audience. While of course not exclusively true, the statistics on the numbers of minorities or indigenous people in the game industry are illuminating. According to the International Game Developers Association's latest figures, people who identify as 'white, Caucasian or European' comprise 68 per cent of global game industry employees, while other ethnicities remain under-represented. In particular, indigenous peoples represent only 2 per cent of the industry. Only 27.8 per cent are female, transgender or another gender identity.

Given this lack of representation, it is perhaps unsurprising that video games continue to perpetuate negative stereotypes, with inaccurate, misogynist, violent colonial representations being the prevalent model, even today. However, indigenous game developers are seeking to overturn this model, however, while addressing structural inequalities at the game design phase and setting their own representations in games, with the goal not only of making the end-user experience



A scene from the videogame Thunderbird Strike.

Credit: Elizabeth Lapensée

more accessible but also using digital game creation as an expression of indigenous self-determination.

'True self-determination in games must happen from the code up',<sup>4</sup> according to Elizabeth LaPensée, an Assistant Professor of Media and Information at Michigan State University and an award-winning creator of digital video games. The games she has developed, such as the topical *Thunderbird Strike* (where players battle a 'pipeline snake') or the educational *When Rivers Were Trails* (focusing on the impact of the assimilationist allotment acts of the 1890s) are expressions of her Anishinaabe and Métis worldviews. The games incorporate indigenous ways of knowing into their designs, themes and story-telling formats, for example by using non-linear paths that replicate traditional story-telling structures, using characters from indigenous stories, situating games in historical realities and prioritizing

acts of relationality in games.

LaPensée designs and creates games through collaboration with other indigenous artists, designers, elders and community members, ensuring that the design process is inclusive from start to finish. The creation of digital games is a method through which indigenous people can create digital 'self-determined spaces' for the expression of their identities on their own terms.

Digital games are also one of the key platforms to transmit cultural ideologies, teachings and aesthetics to indigenous youth. LaPensée has embraced this by encouraging her own children to engage in indigenous-created games and through game development workshops for indigenous youth. Her work includes a collaboration with the Aboriginal Territories in Cyberspace (AbTeC) research network, which coordinates training programs, known as the Skins Workshops, for indigenous

4 LaPensée, E., 'Games as enduring presence.' *PUBLIC*, 54: Indigenous Art: New Media and the Digital, 2016, pp.178-186.

youth based out of Concordia University in Montreal, for which LaPensée helped develop a curriculum. 'Game modding' is the adaptation or creation of game content using commercial game engines or software. 'Skinning' is another word for this practice and lends its name to the program. Youth share stories and ways of knowing from their cultures and incorporate them into game design, while building their programming and software design skills and reflecting authentic self-representation in the games they create. Many of the program participants are young women, and some of the games created out of this program have included an active, empowered female lead character who overturns highly sexualized stereotypes.

Of course, it is difficult fully to escape the legacy of an industry that is still characterized by inequalities and discrimination. Even these pioneering digital games are still mostly developed in pre-existing Western-coded game engines, so that indigenous peoples are building their games using software that was not developed with indigenous worldviews or languages in mind. 'Just as there are many cultures, there are many ways game engines could take form, rooted in different ways of knowing, languages, and practices,' LaPensée explains. She hopes in the future to see indigenous-made game engines, bringing self-determination expression in games to the next level. 'While Indigenous self-determination in digital games is currently limited by the systems within which games are developed, modified systems or Indigenous-made game engines can expand the possibilities of self-expression.'

## Moving forward: towards a rights-based approach to technology

The pace and scale of societal change brought about by the digital revolution today may be unprecedented, but minority and indigenous communities are leading the way in realizing positive ways to harness digital and emerging technologies so as to encompass inclusive and participatory approaches to technological design and innovation. Yet, as suggested at the start of this chapter, there is the very real threat that technological advances are moving so quickly that they are proceeding without careful application of a human rights-based approach. With many minorities and indigenous peoples continuing to face structural discrimination across the world and at all levels of society, there is the real possibility that technological innovations will only reinforce existing discrimination and marginalization.

As highlighted by the case studies here, however, this is not the only possibility. With the right approach, digital technologies could deliver wide-ranging and much needed benefits to communities struggling to protect their identities and livelihoods in the face of environmental upheaval, targeted violence and land rights violations. The following principles present a positive framework for technology that promotes inclusion and respects the rights of minority and indigenous peoples.

Technologies should therefore be:

- **Accessible:** In order to ameliorate the impact of reinforced discrimination through technology, minorities

and indigenous peoples must be supported to develop their fluency in digital technologies and their application towards the realization of their rights through education, training and capacity development. Accessibility must also extend to members of minorities and indigenous peoples experiencing the impact of intersectional discrimination, such as women, LGBTQ+ groups, people with disabilities, youth and the elderly.

- **Affordable:** Open-source technologies should be prioritized and promoted among minorities and indigenous peoples, with programs in place both to monitor whether associated costs are excluding marginalized groups from accessing software and to ensure that clear frameworks are put in place to remove these barriers.
- **Adaptive:** Mainstream technologies should not merely be standardized products aimed at a majority market. They need to be able to adapt to the needs and creative desires of minorities and indigenous peoples, as communities with cultures that also change and adapt.
- **Respectful:** Minority and indigenous communities must be able to have their privacy respected, especially when technological innovations are designed specifically with their communities in mind. Collective intellectual property rights also need to be considered during the creation and realization of technologies that veer into these areas.
- **Disruptive:** Technology should not just support and replicate the status quo. It needs to be a force that can be harnessed to disrupt existing power structures, including those stemming from intersectional discrimination towards those marginalized groups belonging to minority and indigenous communities. While technological innovations may lead to a shake-up of existing structural inequalities, technologies that encourage the realization of the rights of minorities, indigenous peoples and other excluded groups must be supported to allow these changes to take place.
- **Participatory:** Governments, industry and civil society must apply a human rights-based approach to technology with the active involvement of minorities and indigenous peoples so that their rights are safeguarded.

As summarized by Enrique Piracés in *The Future of Human Rights Technology*: 'Humans have created technology, and humans have used technology to alter society. We should avoid giving agency to technology and remind ourselves constantly that technology is created by people and organizations with agendas. These are agendas that will impact us, and we should aim to influence them.'<sup>5</sup> As technology has an ever greater influence on our world, we must recognize that how we respond to the challenges and opportunities it presents today will ultimately shape every aspect of our existence, including human rights, equality and social inclusion.

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5 Piracés, E., 'The future of human rights technology', in M.K. Land and J.D. Aronson (eds), *New Technologies for Human Rights Law and Practice*, Cambridge University Press, 2018.

# The challenges of technology and sustainable development: Some reflections on the future of the SDGs for minorities and indigenous peoples

Carolyn Stephens



Violet, an Aboriginal traditional landowner in Kakadu, uses a flaming palm frond to set fire to an area of bushland as part of a traditional system of controlled fire management. She constantly studies the landscape and burns areas at the right time so that the fires are not too hot but can still clear underlying debris which could fuel a larger, out of control, wildfire. Nr. Cooinda, Kakadu, Northern Territory, Australia. *Credit: Matthew Abbott/Panos*

While technological advances have been linked to patterns of destructive unsustainable development, including the direct impacts of mining and other extractive industries on communal lands, they also offer new tools that open up the possibility of an alternative future. Indeed, in their widest definition, technologies are innovations developed to enhance living and social conditions, including health, well-being and the environment.

From participatory information and communication technologies (ICTs) to the use of traditional architectural design, members of minority and indigenous communities have had a specific role in maintaining and developing technological traditions: for example, minority and indigenous women have played a highly important role in developing and maintaining bodies of knowledge around traditional foods, medicine and child health.

It is also important to recognize the role of older community members in maintaining and documenting minority and indigenous languages, and to consider the ways in which technology can help or hinder the protection of unique practices and traditions. Furthermore, far from being passive recipients, minorities and indigenous peoples have themselves been the creators and users of processes and goods that we consider as technology – and some of the world's most ancient cultures have left the world with a legacy of building, medicine, agriculture and other forms of traditional knowledge that are still compelling and relevant today.

This chapter looks at the role of technology in improving lives for minority and indigenous communities, and is specifically focused on monitoring, implementing and achieving the Sustainable Development Goals (SDGs). It begins with an overview of the SDG process and its implications, before looking in more detail at the potential for improved data collection, inclusive access and the value of establishing the links between 'traditional knowledge' and 'modern technology'. Though frequently presented as contrasting visions, in practice they are often closely connected. Indeed, there is growing awareness that some of the solutions to many contemporary challenges, such as climate change, could be built on long-established minority and indigenous perspectives on environmental management, agriculture and forestry.

### **Minorities, indigenous peoples and the SDGs**

The SDGs were adopted by the United Nations (UN) in 2015 with the aim of guiding the world towards a healthier, more inclusive and more sustainable

future. Comprising 17 goals and 169 associated targets, they build on the Millennium Development Goals (MDGs) that preceded them and are set to continue until 2030. Part of the need for the SDGs, in fact, was the failure of the MDGs to deliver on their goals for large sections of society, and, in particular, minorities and indigenous peoples. These shortcomings make the realization of the SDGs even more critical for minority and indigenous communities.

There is no doubt that, as things currently stand, the most marginalized continue to be left behind. Indigenous peoples, for example, are estimated to make up 5 per cent of the world's population but account for around 15 per cent of the extremely poor. A similar picture emerges for ethnic, linguistic and religious minorities, who are also frequently confronted by similar barriers to inclusion. Recognizing these disparities is essential as even apparent success stories can conceal stark challenges for certain groups. Denmark, for example, was ranked as the highest performing country in the Sustainable Development Report 2019, an independent ranking of national progress towards achievements of the SDGs. Yet Greenland, an autonomous territory of Denmark with a majority Inuit indigenous population, still struggles with high poverty rates and the disruptive experience of post-war modernization, leading to such acute social issues as alcoholism and one of the highest suicide rates in the world. Development, in and of itself, does not inevitably bring positive outcomes for minorities and indigenous peoples if it is not rights-based and participatory.

This is the dilemma that today's technologies pose. There is, understandably, much optimism around their potential to help deliver momentum to achieving the targets of the SDGs. Yet unequal access to technology, particularly in the twenty-first century, could create further barriers to change for minorities and indigenous peoples, affecting access to multiple aspects of well-being. It is not hard to see how rolling out sophisticated computer software for education in schools or investing in more centralized, high-tech health care systems could exacerbate the isolation of some communities from these services if a concerted effort is not made to overcome the social, economic and political discrimination they face.

It is also important to view technology through the conceptual and epistemic lens of minority and indigenous communities, and of all groups within these communities. This means looking



Indigenous peoples are estimated to make up **5% of the world's population** but account for **15% of the extremely poor.**

at technology as a form of power, and not seeing it simply as a neutral tool. Indeed, it is important to recognize that technology has often been a double-edged sword for minority and indigenous communities, and one frequently used by dominant cultures to gain control over their lands and ways of life. For example, technologies such as modern information media frequently act as drivers of exclusion, as they are not adapted to the diverse members of ethnic, religious or linguistic minorities or indigenous peoples, or people in need of assistive technologies. The failure to tailor these technologies to the specific physical, cultural or linguistic needs of minorities is evident even within the context of the SDGs: the UN's materials on the SDGs are only widely translated into the six official languages (Arabic, Chinese, English, French, Russian and Spanish), particularly disadvantaging linguistic minorities and speakers of indigenous languages.

Nevertheless, indigenous peoples have been able to play a much more prominent role during the SDG discussions than before, as reflected in the inclusion of six direct references to indigenous peoples in the key 2015 UN General Assembly Resolution 70/1, Transforming Our World: The 2030 Agenda for Sustainable Development. Building on this, the UN Permanent Forum on Indigenous Issues has issued a number of briefings and reports highlighting the importance of ensuring that indigenous peoples remain at the heart of the SDG process. Their demands include the implementation of the SDGs with full respect for the rights of indigenous peoples, taking steps to ensure indigenous peoples

are visible in the data and review of the goals and targets, with relevant indicators for indigenous peoples included at a national level. Equally importantly, they have called for full and meaningful indigenous participation in implementation, follow-up and review.

It is important to recognize that the demands made by the well-organized advocacy of the UN Permanent Forum for Indigenous Peoples are as relevant for ethnic, religious and other minorities, which by definition, are a highly diverse group and not easily represented under one voice or umbrella. Minority community organizations and coalitions, such as those representing Dalits and Afro-descendants, have also produced research and briefings for campaigns around the SDGs. These repeatedly draw attention to the needs of minorities and consideration of the achievement of the SDGs from the perspective of these groups.

Indeed, the SDGs are fundamentally about equality and inclusion. When the 2030 Agenda for Sustainable Development was adopted by UN member states, they pledged to ensure that 'no one will be left behind'. Goal 10 is very clear: 'Reduce inequality within and among countries.'

### **Improving the visibility of minorities and indigenous peoples in the SDGs**

One of the most pressing issues around achieving the SDGs, especially for minorities and indigenous peoples, is how to make visible the progress of these diverse groups. All 17 SDGs, spanning a range of issues including poverty (Goal 1), zero hunger (Goal 2), health and well-being (Goal 3),



## THE SUSTAINABLE DEVELOPMENT GOALS (SDGS)

- Goal 1** End poverty in all its forms everywhere
- Goal 2** End hunger, achieve food security and improved nutrition and promote sustainable agriculture
- Goal 3** Ensure healthy lives and promote well-being for all at all ages
- Goal 4** Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all
- Goal 5** Achieve gender equality and empower all women and girls
- Goal 6** Ensure availability and sustainable management of water and sanitation for all
- Goal 7** Ensure access to affordable, reliable, sustainable and modern energy for all
- Goal 8** Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all
- Goal 9** Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation
- Goal 10** Reduce inequality within and among countries
- Goal 11** Make cities and human settlements inclusive, safe, resilient and sustainable
- Goal 12** Ensure sustainable consumption and production patterns
- Goal 13** Take urgent action to combat climate change and its impacts
- Goal 14** Conserve and sustainably use the oceans, seas and marine resources for sustainable development
- Goal 15** Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss
- Goal 16** Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels
- Goal 17** Strengthen the means of implementation and revitalize the global partnership for sustainable development

education (Goal 4) and gender equality (Goal 5), use a series of measurable indicators to assess each goal and monitor progress towards achievement of the overall aim of sustainable development. From the inception of the goals, indigenous and minority activists have lobbied for the inclusion of specific indicators related to their communities and the problems they face. Minority and indigenous communities have also advocated for their *conceptualization* of the goals to be taken into consideration. Poverty, for example, is conceptualized very differently by different minorities and indigenous peoples – and the very concept is highly culturally specific and diversely constructed.

In this context, the first issue to look at is how technology can lift the ‘persistent invisibility’<sup>1</sup> of the experience of minority and indigenous communities in official statistics and data. The key aspect here, which has been the focus of campaigns by minority and indigenous organizations for decades, is the disaggregation of official data to identify the specific situation of minority and indigenous groups.

Just as importantly, disaggregated data can then measure progress to improve the lives of these groups. In Canada, the National Collaborating Centre on Aboriginal Health has made this a central concern, arguing that ‘fully disaggregating data helps to expose hidden trends’ and ‘can make vulnerable groups more visible to policy makers’.<sup>2</sup> Similar initiatives have been undertaken by minority

organizations. For example, the Asia Dalit Rights Forum (ADRF) has country chapters that work with the national government, civil society and local communities on data collection, consultations and monitoring to support the realization of the SDGs. Recognizing that caste barriers continue to undermine progress, Dalit activists have also called for more ‘caste-sensitive’ indicators to monitor progress in narrowing social inequalities.

Technology can be of huge importance in these processes, in particular ICTs that allow official data, such as census, health and education information, to be easily disaggregated by individual populations. Other digital tools, such as informal mapping and citizen-led data production, also offer significant potential. It is worth noting that the most effective approaches combine technological innovation with a commitment to inclusion and empowerment. After all, the historic absence or under-reporting of minority and indigenous populations in many national censuses has often been the result of discrimination or political calculations due to their geographic or social isolation from the centres of power in their countries. Indeed, high-cost technologies could compound these issues by acting as an excluding force, pushing poorer or remotely located communities further into the shadows.

Disaggregated data collection should therefore include, among other elements, the active involvement of

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1 UN Department of Economic and Social Affairs, *State of the World's Indigenous Peoples: Implementing the United Nations Declaration on Indigenous Peoples*, 2019.

2 National Collaborating Centre on Aboriginal Health, ‘The importance of disaggregated data’, 2010. Available at: <https://www.nccih.ca/docs/context/FS-ImportanceDisaggregatedData-EN.pdf>

members of minority and indigenous communities in identifying and collecting information. The Indigenous Peoples Major Group (civil society organizations working on the SDGs have been grouped by the UN into thematic clusters, known as 'major groups') articulated this very clearly in a policy statement on the SDGs, calling for 'the inclusion of cultural identifiers in national census and population data', the identification of relevant indicators for indigenous peoples 'with their full and meaningful participation' and 'community based monitoring and information systems' to complement national measurements.<sup>3</sup>

There have been significant attempts to use ICTs to support monitoring of SDG progress for minority and indigenous communities by empowering them in the data collection process. For example, the Indigenous Navigator is an online platform designed to support communities in measuring and assessing their rights. The Navigator includes a toolkit for indigenous users to teach themselves how to evaluate and monitor their rights, including their progress towards the SDGs. Each domain highlights the right of indigenous peoples and its relevant SDG target. Importantly, the initiative has taken a holistic approach to the provision of this technology by providing extensive education and capacity development in the use of these technologies. During the project's pilot phase, for example, a community questionnaire was

tested with indigenous communities in various countries in Africa, Asia and the Americas, and the website includes training materials, tools and online courses to help indigenous peoples to understand and develop their own indicators.<sup>4</sup>

In Nepal, for example, the pilot phase worked with two indigenous communities. Tahal Thami, the director of one of the local partner organizations for the project there, highlighted the strong investment that community members felt through their engagement as direct participants in data collection. He also highlighted that the process had the added benefit of raising awareness among local residents on their rights and a broader exploration of how they could engage officials and donors with their own views for 'a self-determined development', as he described it: 'It opened an opportunity to reflect on the concept of poverty. Poverty was realized to be not only about economic concerns in pecuniary terms, but more so about lack of other intangible matters such as powerlessness, illiteracy and having no voice, among others.'

### The role of technologies in delivering the SDGs

Technology does not simply have a role in making progress visible within the SDGs for minorities and indigenous peoples but also has a significant role in delivering

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- 3 Indigenous Peoples Major Group, 'Policy Brief on Sustainable Development Goals and Post-2015 Development Agenda'. Available at: <https://sustainabledevelopment.un.org/content/documents/7036IPMG%20Policy%20Brief%20Working%20Draft%202015.pdf>
  - 4 Indigenous Navigator, 'Indigenous peoples: Disaggregated data needed for monitoring SDGs'. Available at: <http://nav.indigenousnavigator.com/index.php/en/news/120-indigenous-peoples-disaggregated-data-needed-for-monitoring-sdgs>



A large sign gives information in English about Covid-19 on the street in Kashmir, India.

*Credit: Atul Loke*

many of the targets. This section considers the potential of technology to support the implementation of sustainable development.

For instance, access to assistive technologies is especially important for members of minorities and indigenous peoples who also live with disabilities. Accessible and assistive technologies such as screen-readers for visually impaired persons, wheelchairs for physically impaired persons, subtitles for hearing-impaired persons and video calls to facilitate communication in sign languages can lower or eliminate barriers to education, training and employment, health care, and political and social participation. According to the World Health Organization (WHO), 'assistive technology reduces the need for formal health and support services, long-term care and the work of caregivers. Without assistive technology, people

are often excluded, isolated and locked into poverty, thereby increasing the impact of disease and disability on a person, their family and society.'<sup>5</sup>

These issues are especially pertinent for minority and indigenous persons with disabilities, who face intersectional discrimination, as members of a marginalized community and as a result of their mental or physical impairment. These barriers are specific to minority or indigenous persons with disabilities as they are not experienced by either their non-disabled minority or indigenous counterparts or their disabled counterparts from other dominant groups. A recent example is the lack of information available on Covid-19 in accessible formats and in culturally appropriate, indigenous mother-tongue languages, which specifically affecting the ability of minority or indigenous persons with disabilities to protect themselves against the virus.

5 WHO, 'Assistive technology', 18 March 2018. Available at: <https://www.who.int/news-room/fact-sheets/detail/assistive-technology>

As with other technologies, the issue is not simply the presence or absence of technologies but also the extent to which those available are tailored to the specific needs and preferences of certain communities. For instance, indigenous peoples may take a different view of what constitutes 'disability' and even challenge the concept itself. An International Labour Organization (ILO) report on this theme reports that 'the ancestral Māori conception of humanity embraces difference and uniqueness, seeing disability as a natural part of one's being, and not as an impairment. Indigenous peoples' rejection of the concept of impairment as linked to a limitation was also evident in indigenous peoples in the Americas.'<sup>6</sup> This perspective will clearly inform the nature of assistive technologies required. The fact that persons with disabilities from some indigenous communities have found standard equipment, produced externally without their involvement, ill suited to their particular context points to the necessity of ensuring their involvement at every stage. Inclusive access hinges not only on the numbers in physical possession of a particular technology but also their ability to shape its design and development from inception.

ICTs, if imposed insensitively or without consultation with communities, can pose their own challenges to non-majority cultures and values. Nevertheless, when accompanied by a rights-based approach, television, film and other multimedia content can support the delivery of essential services, such as education and health, to otherwise

excluded populations. In Taiwan, for example, the Indigenous Peoples Cultural Foundation has developed the Taiwan Indigenous Television (TITV) channel to tackle a wide range of issues faced by indigenous peoples across the country, including loss of language, cultural attrition, and lack of access to health information and educational opportunities more generally. The TITV network is attempting to overcome these barriers by using the channel to reach a diverse range of communities.

In remote settings, where minority and indigenous communities are physically isolated, access to food, education, medicine and energy can be especially challenging. In these settings, technology can play a vital role in helping communities access services. For example, telemedicine has considerable potential to deliver health services to isolated communities. In Australia, the Aboriginal Community Controlled Health Service (ACCHS) is a specially designed service which aims to provide culturally appropriate health care to indigenous Australians, particularly in remote settings. A recent study evaluating this programme found that the 'telehealth' achieved positive results because, crucially, it was managed by local residents with an emphasis on 'holistic and culturally appropriate care', which enabled the technology to enhance access to indigenous health workers while reducing the burden on the community.

Remote minority and indigenous communities can also benefit from modern technologies to access electricity and energy. The track record

6 Rivas Velarde, M.C., 'Indigenous persons with disabilities: access to training and employment', ILO discussion paper, 2015.



A Baka man in the Congo Basin climbs up a tree to collect honey.

*Credit: Graeme Williams*

of many development programmes in this area, including many which have enjoyed funding from international donors, is mixed: indigenous communities in particular have been subjected to violence, displacement and dispossession of their ancestral lands not only to accommodate fossil fuel extraction and mining but also hydroelectric dams. Many of these projects, even those justified on environmental grounds, still represent the sort of one-sided and exploitative use of technology that SDG 17 implicitly cautioned against, calling instead for 'knowledge sharing on mutually agreed terms' and 'the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms'.

Even 'green' development can generate disastrous human impacts for communities if undertaken without free, prior and informed consent (FPIC) or respect for land rights. By way of contrast, a solar energy project in rural Argentina funded by the World Bank – frequently criticized for its sponsorship of infrastructure programmes with poor human rights outcomes – was able to deliver sustainable energy to hundreds of households through a 'bottom-up' approach that combined small-scale, off-grid solar technologies suited to remote communities with a substantial capacity-building component to support local residents in adopting the new technologies and overcoming information barriers.

In situations of conflict, particularly in remote settings of environmental conflict, technology can facilitate the documentation and protection of the rights of minority and indigenous communities while also protecting vital ecosystems. For example, an award-winning community mapping programme in Cameroon and the Democratic Republic of Congo aims to connect isolated forest communities and central policy-makers to support the inclusion and participation of marginalized forest dwellers. The programme helps forest communities to map their land interactively and protect the forests. This mapping project has supported 800 forest communities across the Congo Basin to produce maps of their lands and resources covering over 5 million hectares. In 2016, MappingForRights was recognized by the UN Framework Convention on Climate Change (UNFCCC) as part of the UN Momentum for Change awards.

For land-based communities, this is an example of the ways in which technologies can support SDGs on climate change (Goal 13), sustainable management of terrestrial resources (Goal 15), just, peaceful and inclusive societies (Goal 16), and sustainable development overall (Goal 17).

Activities such as community mapping and documentation, using ICTs such as satellites, mobile phones and the internet, can also support ocean-reliant minority communities. Simple modern technologies can help fishermen and women protect their ecosystem and fellow species. The Food and Agriculture Organization (FAO), for instance, has looked at how both physical and institutional technologies can be used to support and protect small-scale sustainable minority fishing communities. What these examples perhaps demonstrate most clearly is that it is not simply the technologies themselves,

but also how they are applied which determines the extent to which they deliver positive change to minorities and indigenous communities. Consultation, participation, capacity development and culturally appropriate design are as critical to the sustainability of a technology in these contexts as engineering, electronics or other 'hard' elements in its make-up.

### An alternative vision of development

Technology has a significant role to play in the attainment of the SDGs for minorities and indigenous peoples – bringing the best of minority and indigenous technological understanding together with advances in sustainable technologies internationally, including in ICTs and in education, medicine, architecture and planning. Ethnic, linguistic and religious minorities and indigenous peoples have a rich history of multiple and



Indigenous children wearing face masks against the spread of the coronavirus in the Parque Das Tribos. In view of the rampant pandemic, representatives of indigenous organizations from the Amazon region have asked the international community for urgent support. Manaus, Brazil.

*Credit: Lucas Silva/ Alamy*

diverse technologies, spanning science, language and the arts, that are still in use today. This might include visible cultural assets, such as traditional water management systems and physical infrastructure, but also intangible heritage such as herbal medicines and other forms of knowledge that represent a wider understanding of technology.

Given that more than half of the world's population now lives in towns and cities across the world, SDG 11 ('To make cities and human settlements inclusive, safe, resilient and sustainable') has particular relevance for minorities and indigenous peoples, as indigenous city-dwellers are often overlooked: despite the fact that there are millions of indigenous urban residents living in cities across the world, 'the common image is of isolated communities cut off from the modern world, largely disengaged from the challenges and advantages of the urban future.'<sup>7</sup> In practice, however, large numbers of indigenous peoples are living in urban areas and their numbers continue to grow as many others migrate to cities, driven there in search of work and services, or the need to flee violence or displacement from their places of origin. Indigenous people have themselves proposed a more nuanced and participatory approach to the monitoring of Goal 11, informed by their own experiences of discrimination and exclusion in cities. The Indigenous Peoples Major Group proposed a number of sub-indicators in this area, for example, including the 'number

of appropriate human settlements provided to indigenous peoples', the 'proportion or level of participation of indigenous peoples in planning and management', and 'provision of access for indigenous peoples to their religious and cultural sites and access to and repatriation of their ceremonial objects and human remains'.<sup>8</sup> Similar indicators have already been used to assess the situation of minority groups in cities, demonstrating the value of disaggregated data-gathering systems when these are in place to monitor SDG progress. In the United Kingdom (UK), for instance, indicators monitor the inclusion of black and minority ethnic groups in a wide variety of parameters, including education, housing, work and health care. ICTs play a prominent role in these efforts and also help advocacy groups to disseminate findings to a wider audience.

Discussions of urban planning and technologies are frequently dominated by the paradigm of 'smart cities'. Though spanning a range of approaches, the field has nevertheless attracted (alongside much investment and rhetorical support from governments) considerable criticism for its emphasis on technological innovation at the expense of social inclusion, with minorities often overlooked or sidelined in their plans. At their worst, they can actively disempower these groups: for example, Amnesty Tech, Amnesty International's unit focusing on emerging technologies, has

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7 Stephens, C., 'The indigenous experience of urbanization', in P. Grant (ed.), *State of the World's Minorities and Indigenous Peoples 2015: Focus on Cities*, London, MRG, 2015.

8 Indigenous Peoples Major Group, 'Policy brief on Sustainable Development Goals and Post-2015 Development Agenda', *op. cit.*



accused China of co-opting 'smart' urban technologies in Xinjiang to further embed its repressive 'digital police state' in the lives of the Muslim Uyghur minority.<sup>9</sup> The potential for technologies to subject individuals and communities to surveillance and discrimination, whether intentionally or indirectly, is playing out in cities across the world. There is no guarantee that a city built on the best technologies will be fairer or more inclusive for its minority and indigenous residents if the right checks and protections are not in place.

Yet there is a wealth of knowledge and practice that minorities and indigenous peoples can offer as an alternative technological system in relation to contemporary challenges such as urban planning, architecture and interior design. Indeed, this is perhaps one of the most fertile areas for the interface of traditional and modern technologies in building and construction. Some recent initiatives in Canada demonstrate how productive an indigenous-led approach to architecture can be. In Vancouver, a radical plan to develop a new urban quarter called *Senákw*, on the site of a Squamish village of the same name razed to the ground a century ago, was approved in December 2019 by 87 per cent of voting Squamish Nation members. The development will be characterized by a unique architecture strongly informed by the community's traditional design, reinterpreted for contemporary needs. Importantly, too, it breaks the long history of urban exclusion in Canada that has seen its indigenous communities resettled to the urban periphery.

Finally, indigenous peoples and minorities have always made a very strong case for their role in the protection of the planet – a major goal of the SDGs as a whole and the focus of Goal 13 ('Take urgent action to combat climate change and its impacts by regulating emissions and promoting developments in renewable energy') and related goals around sustainable development and environmental protection. There are some significant win-win projects across the world that benefit from traditional approaches to environmental stewardship encompassing both the conservation of endangered species and the protection of minority or indigenous communities in these areas. Many of these programmes depend heavily on technology for capacity building, monitoring and dissemination of their results. For example, an innovative programme in Papua New Guinea aims to preserve a threatened species of tree kangaroo while supporting economic development for local minority groups – all supported through an international collaboration of scientists and local peoples.

This example points to two important and related points around technology. First, that technology should be understood in a broad and holistic fashion, spanning not only the latest developments in science, energy and engineering but also established systems of knowledge belonging to minorities and indigenous peoples that are still relevant to today's challenges. Second, that some of the most effective programmes can combine modern technologies with

9 Begault, L. and Khazrik, J., 'Smart cities: dreams capable of becoming nightmares', Amnesty International, 28 June 2019.

traditional knowledge and community capacity building. This is especially evident in attempts to address climate change: there is now increasing recognition that minority and indigenous knowledge systems and resource management approaches offer an important element in global adaptation, and may be cheaper and more sustainable than some of the resource-intensive 'technological' solutions being proposed. After all, indigenous organizations had been sounding the alarm on climate change for decades before governments belatedly recognized it as a policy concern.

In their statement 'Commitments for Action on Climate', the World Indigenous Peoples' Initiative to the UN Climate Action Summit in September 2019 argued for a rights-based response to the climate crisis that included, among other elements, access to 'the development of renewable energies in accordance with our self-determination and FPIC'.<sup>10</sup> The statement goes on to elaborate a detailed set of recommendations to 'implement and promote a rights-based approach and access to and implementation of renewable energy development, for a just transition away from fossil fuels'. This is just one example of how minorities and indigenous peoples are actively engaging with the latest technologies, but from a perspective grounded in human rights – in the process challenging conventional narratives

around 'development' that overlook these dimensions and have frequently proved devastating for communities.

Crucially, the SDGs focus on sustainable development. In particular, there is the call in Goal 17 for 'knowledge sharing on mutually agreed terms' and 'the development, transfer, dissemination and diffusion of environmentally sound technologies to developing countries on favourable terms' – a far cry from the exploitative and one-sided use of technologies that characterizes much of the activities of mining, oil and other extractive industries. This is what distinguishes the vision of the SDGs from the socially and environmentally destructive activities frequently carried out in the name of development by governments, corporations and donor agencies.

## Conclusion

The outbreak of the Covid-19 pandemic, besides threatening to undermine much progress in the SDGs, has also brought to the surface the underlying inequalities minorities and indigenous peoples face not only in health but also education, livelihoods and other key areas. The heavy tolls even in industrialized countries like the UK, where emerging data suggests that death rates among those with a sub-Saharan African background and those with a Pakistani background in hospitals in England are around 2.5 times higher than for white

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10 Indigenous Peoples Major Group for Sustainable Development, 'Statement of the indigenous peoples constituency on the session: "Linking National, Regional, and Global Dimensions of the 2030 Agenda for Sustainable Development", 20 May 2020'. Available at: <https://www.indigenouspeoples-sdg.org/index.php/english/all-resources/ipmg-position-papers-and-publications/ipmg-statements-and-interventions>

British people, show that 'development' alone is no guarantee of protection from the devastation of the virus. Good governance and human rights have also been important factors in determining the success of different countries in their response.

It is therefore more important than ever to recognize that technologies, while often presented as 'neutral', can replicate discrimination without a clear rights-based approach. To continue to move towards the targets of the SDGs, with minorities and indigenous peoples at the heart of that process, we need to ensure that social inclusion and sustainability underpin these approaches. With every new technological advance, as with any development, it is important to look at how patterns of exclusion have contributed to unequal service access, and how technology might either help or exacerbate this situation. All too often, the design and implementation of technology initiatives lack minority or indigenous peoples' participation, or consideration of their social, economic or political implications. With this in mind, some principles to help ensure that technologies support rather than hinder sustainable development are listed below:

- *Ensure technologies work to improve visibility for minorities and indigenous peoples in data monitoring.* Lack of visibility, particularly in terms of disaggregated data, remains perhaps the greatest challenge facing both minorities and indigenous peoples. Data tools and other technologies, including

citizen-led ICTs, could help deliver a clearer and more inclusive evidence based on the inequalities they continue to experience.

- *Overcome physical and social barriers to access and availability of essential services.* Geographic exclusion and other constraints around services still exist for minority and indigenous communities. If they are not implemented in an inclusive fashion, technologies could compound rather than alleviate these constraints: for example, if technologies are unaffordable for the most marginalized communities. Poverty can and has prevented many communities from accessing services more generally. Technology, and particularly the high cost of technologies, could make their availability dependent on external income sources such as international donors.
- *Ensure that technologies are delivered accessibly and equitably for minority and indigenous users.* Access to information and knowledge in general has often been obstructed for indigenous and minority communities. New technologies could compound this if communities are not provided with the tools to use these effectively and on their own terms. Technology-led service delivery, such as telemedicine and online education platforms, should therefore be accompanied by adequate training and capacity development for communities.

- *Recognize and address the power dynamics inherent in many mainstream technologies.* Most digital technologies are designed by majority institutions and developed in dominant languages. Tools-based resources offer a way forward, but these resources need to be culturally appropriate and disseminated more widely in many indigenous and minority languages. For many peoples, oral transmission of knowledge and communication is key, and this is currently a significant barrier to some technologies being meaningfully accessed and used by these groups.
- *Ensure participation is central to every stage of technological delivery, including upstream design and development.* Perhaps key to this challenge is the move

from technologies designed 'for' minorities and indigenous peoples to those made 'with' and 'by' them. This can include ways in which minority and indigenous peoples conceptualize the SDGs and the role of technology in achieving them. Starting from this point, technology can look very different.

- *Take steps to integrate local perspectives on technology.* This requires a holistic approach that encompasses traditional knowledge as a living and evolving set of technologies in their own right. Many programmes have successfully combined new technologies with local approaches to various challenges, including climate change adaptation, to ensure more effective development outcomes for communities. ■



**Africa**

In Africa, the legacy of colonialism continues to contribute to poverty, conflict and inequalities across the region. The continent's experience of technology was for centuries one-sided, with Britain, France and other European powers extracting vast quantities of timber, ore and precious metals to fuel their industrial growth while the populations under their control remained impoverished and excluded from any positive development.

This is illustrated by the history of the **Democratic Republic of Congo (DRC)** where, after years of brutal exploitation under Belgian rule for rubber and other resources, then the violence and corruption of Mobutu Sese Seko's dictatorship, the country finds itself today at the heart of the global supply chain for cobalt. A valuable mineral used in lithium-ion batteries used to power electric vehicles, mobile devices and other high-end technologies, which is mined by tens of thousands of workers, including many children, in extremely hazardous conditions for around US\$1 a day.

In Africa, as elsewhere, online platforms present a new frontline for minorities, indigenous peoples and other marginalized groups which have long faced discrimination and exclusion. In **Tanzania**, for instance, persons with albinism contend with verbal abuse online, as well as stigma and even the threat of abduction and dismemberment due to superstition. And yet this same technology has also enabled the community to express themselves more openly and challenge prejudice.

The same holds true of other technologies, such as mobile phones. While their reliance on minerals such as cobalt brings associated human rights challenges, they have enabled a burgeoning mobile finance industry that has empowered Turkana pastoralists in **Kenya**, among others. These new technologies are providing them with additional coping strategies to maintain their traditional pastoralist lifestyles despite the challenges of a rapidly changing climate. Mobile devices have also provided indigenous activists with tools to protect their land rights from the depredations of illegal logging and other threats. In **Cameroon**, for example, forest-dwelling Baka have been involved in designing innovative digital mapping apps that they can then use on smartphones to document environmental crimes.

# Cameroon: Confronting environmental injustice and illegal logging in the rainforest through indigenous-led technology

Simon Hoyte



A Baka community member using the Sapelli app to monitor animal species in their forests.  
*Credit: Simon Hoyte*



With its extensive forests, Cameroon has in recent years seen an increasing focus on conservation, encouraged by international organizations such as the Worldwide Fund for Nature (WWF). Yet, in the words of a young Baka man living in south-eastern Cameroon, close to the border with Congo, 'the majority don't have the knowledge of the forest and to heal the illnesses'.

He understands all too well the contradiction of forest conservation in Central Africa: that those who interact most intimately with the forest and hold the necessary knowledge to sustain it are almost entirely excluded from contributing. The entirety of Cameroon's forest estate is under government ownership, with more than a third allocated as private logging concessions and most of the remainder annexed as people-free wildlife reserves. Such zoning has forcibly evicted indigenous Baka communities from their ancestral forests to roadsides, leading to widespread exclusion from the forest resources which the Baka rely upon not only for subsistence and medicine, but also as the basis of their worldview, identity and spiritual beliefs.

Baka are one of Central Africa's indigenous hunter-gatherer communities, surviving entirely within the rainforests shared between Cameroon, Gabon and Congo-Brazzaville. Alongside the San population of southern Africa, they are one of humanity's oldest contemporary

peoples and have consequently accumulated an incredibly intricate ecological knowledge of these forests. This is most apparent through their language – for example, Baka have over 28 words to describe elephants, depending on their age, sex, health and relationship to both other elephants and humans, as well as 19 words for gorilla. There is a specific word for the time, in the late afternoon, when honeybees leave their hive and search for nectar in the forest (*mòngombe*), and for the noise of honeybees early in the morning (*màkelo*). One Baka village has cited 624 different species of medicinal plants and 580 plants on which they rely for sustenance. Elders and youths alike have sophisticated spatial knowledge of where these plants grow and where animal species congregate, and at what specific times of the year. Such knowledge is not held in isolation from the forest but relies on constant interaction: after all, the best way to find wild *safa* yams is by following the calls of the *sangòngò* bird.

When it comes to protecting the forest from wildlife crime and deforestation, a legacy of French colonial management with overarching power renders indigenous knowledge inferior to that of 'experts' and the state. Interestingly, the problem locally is often not that the Baka are not considered part of the forest, but the opposite: as forest dwellers, they are regarded as being too poorly educated or 'lazy' to meaningfully take part in forest conservation. With studies showing that indigenous-led conservation is equally or more effective at safeguarding biodiversity than that led by outsiders, and that exclusion is more likely to drive communities into illegal activities, it is unfortunate that conservation authorities and non-governmental organizations (NGOs) in this region still largely practise such 'conservation from above'.

If forest managers sat and listened to Baka voices, they would quickly hear: 'Outsiders are destroying the forest while local people need it for subsistence', 'The government needs to know our capacity to protect this forest', but 'We are not empowered to stop such activities.' The design of mainstream conservation models inhibits Baka involvement because they rely on high levels of literacy and pre-designed, expensive missions. But participative technology is changing this.

To take action on community concerns, participative mapping projects have been launched with eight communities in collaboration with the Extreme Citizen Science group (ExCiteS) based at University College London. Mapping has emerged as a powerful way to connect indigenous knowledge and values with decision-makers who might otherwise ignore or struggle to interact

with them. If the process of mapping is done in an inclusive manner, whereby communities are involved in what to map and why, it can serve as a significant tool for empowerment.

Government hunting restrictions imposed on the Baka made communities initially wary of the project: 'Will the technology tell us what we can and can't hunt?', one community member asked. But by prioritizing the communities' concerns and leadership, it quickly became clear to all that they themselves are in control of what the technology is used for. The smartphone software developed by ExCiteS, Sapelli, enables this through a process of 'co-design'. Not only is the concept of the project informed by local concerns, but the physical design of the user interface is led by community members. Icons are used instead of text so that barriers of illiteracy are overcome. Because being invited to participate is so rare, there is often surprise, and even a great deal of laughter, when it is recommended that participants draw icons themselves, whether it be in a notebook, using a stick to draw on the ground or making animal prints in the mud. While the process builds trust with community members, most importantly it ensures that icons are locally relevant and distinguishable, and creates a sense of ownership: in the words of Monjombe\*, a Baka elder, 'All our hearts are in it.' On seeing their own icons in the Sapelli smartphone app for the first time, there can be disbelief and excitement that they have co-created this technology.

Deciding on what to include together creates a space for the community to decide on their priorities and suggest

‘Outsiders are destroying the forest while local people need it for subsistence. The government needs to know our capacity to protect this forest, but we are not empowered to stop such activities.’

innovative ideas to achieve them. In one meeting, an elder asked if they could also use the phone to monitor animals in order to produce a map of their distribution. This idea was subsequently shared with other communities, all of which decided that they too would like to monitor animals. Going against widespread bad practice, a community protocol is formed by each community on how exactly the data will be collected, who it will be shared with and, most importantly, what it will be used for. Unintended negative outcomes from the data collection must be discussed and mitigated through each community's protocol. One community member, for example, expressed his concerns about how the data could be co-opted by officials with their own agenda: ‘I am worried that if we map interesting animals the authorities will expand the park.’

Most communities decided they wanted to make reports of wildlife crime, such as poachers’ shelters, gun cartridges and killed animals, but this renders them at risk from reprisals, as one community pointed out: ‘Such a project could put us in serious trouble with the Bantus [the dominant local group]’ and ‘When the information is sent, how do you keep us secure?’ As a result, multiple security techniques were established, including anonymizing the users through a colour

ID system. The posing of these sorts of questions is a good indication that the community has understood the potential risks of the project – an important part of the free, prior and informed consent process. Feeling satisfied after this process, a Baka man said: ‘What we could not openly speak about, we can now report.’

Physically handling smartphones and practising the creation of audio clips and photos – the first time many had heard their own voice or seen themselves in a photo – proved to be an empowering experience even before any data had been collected. Baka are not regarded as trustworthy by forest managers, as confirmed by the responses of NGOs and government officials to the project team members: ‘They will steal and sell the phones!’ Such attitudes have been a major barrier for Baka to access these technologies until the project began.

Challenges such as charging the devices and preventing damage are easily solved with portable solar chargers and by choosing rugged, waterproof phones. Community elders often have highly callused fingers, an impediment to using the phone's touchscreen, but this has been overcome through light-hearted sessions of testing the use of knuckles or noses as a replacement. After

taking a report, audio clip and photo using Sapelli, the data is stored on the phone until it can send to a secure database. Sapelli exploits pockets of mobile network in the forest by attempting to send the data by mobile internet and SMS every five minutes.

When data is received by members of the ExCiteS team, community protocols are consulted. Most often, wildlife crime data is accumulated on an online map, which reveals hotspots across the landscape and provides local knowledge on the realities of the wildlife trade. Animal monitoring data, usually in the form of recorded footprints, gorilla nests, chimpanzee cries, pangolin burrows or elephant paths, is added to the map and utilized for more efficient conservation planning. Over 1,100 data points, supported by 1,210 photos and audio clips, have so far been taken since the project began in

mid-2017: the majority of communities have agreed to pass this on to ExCiteS researchers and conservation workers in the region to support their efforts to tackle wildlife crime. This is changing things on the ground – some villages see more wildlife and fewer traffickers, and all have experienced a sense of empowerment. In the words of Kelepa, a Baka community member: 'It shows our ability to work, to be part of it and show we are not lazy.' However, these technological solutions can only achieve so much in a context where corruption, poor governance and discrimination remain pervasive. It is to be hoped that this wealth of data can support more systemic change, particularly in the form of land and access rights for the Baka.

*\* All the names in this case study have been changed to protect the anonymity of respondents.*

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# Democratic Republic of Congo: As global demand for cobalt soars, child miners pay the price

Hamimu Masudi

With its abundant natural resources, the Democratic Republic of Congo (DRC) has been prey to exploitation since it was first 'discovered' in 1877 by journalist and explorer, Sir Henry Morton Stanley. Stanley returned in 1879 with the backing of King Leopold II of Belgium, who later turned the region into his own personal fiefdom.

In the 150 or so years since, the DRC has repeatedly suffered plunder, civil unrest and the most egregious forms of human rights abuses – much of which is linked to the struggle to control its wealth of metals, minerals and forests.

When rubber became a key raw material in the manufacture of tyres, the country became the world's largest producer, supplying European factories throughout the second industrial revolution – but this came with a heavy toll for local communities, who were subjected to forced labour, displacement and other atrocities. Later on, the uranium used to produce the bombs that dropped on Hiroshima

and Nagasaki during the Second World War was mined in the DRC.

Now, as we transition from cars with internal combustion engines to the new generation of electric vehicles (EVs), the DRC again finds itself bearing the human cost of the latest technology. Some 60 per cent of the world's supply of cobalt – a mineral widely used in the batteries that power EVs, as well as such tech devices as smartphones, tablets and laptops – comes from the DRC, with much of this production concentrated in what was formerly known as Katanga province, a resource-rich region in the south of the country that has



Children pass an enormous mining slag heap of copper and cobalt that is being processed by a Belgian-Congolese-American joint venture. Lubumbashi, Haut Katanga, Democratic Republic of Congo.

*Credit: JB Russell /Panos*

nevertheless struggled with widespread poverty and intermittent outbreaks of inter-ethnic violence. In particular, the mining industry has attracted many migrant labourers, adding to potential tensions. Indeed, many have typically come from the Kasai region, which has itself recently borne the brunt of massive displacement.

This mining hub has also become the site of an ongoing human rights crisis linked directly to its natural resources. Children as young as 10 years old are reported to be digging in trenches, labouring in rivers, sifting and sorting the mineral and carrying sacks of ore heavier than their own body weight. Even those too young to work themselves are forced to spend the entire day in mining sites with their mothers, breathing in toxic fumes.

Research by Amnesty International and African Resource Watch (Afrewatch) in 2016 confirmed that chronic exposure

to dust containing cobalt can result in fatal 'hard metal lung disease' and that inhalation of cobalt particles could cause a range of respiratory problems, including asthma. Despite this, the vast majority of mine workers do not have even basic protective equipment such as face masks or gloves. Today, with few safeguards in place, many children continue to be engaged in this hazardous work. Previous estimates by UNICEF have suggested that some 40,000 children were working in mines in southern DRC in perilous and exploitative conditions.

According to international law, the involvement of children in mining constitutes one of the most egregious forms of child labour. In its most recent comments and conclusions, the International Labour Organization (ILO) Committee of Experts reviewing the DRC's adherence to the Worst Forms of Child Labour Convention (ILO No. 182, 1999) called on the government to intensify its efforts in preventing children from working in mines and ensuring that thorough investigations and prosecutions of offenders are carried out, with adequate penalties imposed.

However, the chain of culpability extends beyond the DRC itself to the large global multinationals which trade, purchase or use cobalt. Given limited regulation, cobalt mined by children can change hands at local markets from Congolese artisanal miners to international brokers, ending up in a laptop or an EV thousands of miles away. Among the largest international companies listed in this trade is Congo Dongfang Mining International (CDM), a subsidiary of Chinese-based Zhejiang Huayou Cobalt Company,

and the Swiss mining giant Glencore. Both corporations then sell it on for processing before it is then bought by manufacturers of EVs, mobile devices and other technologies.

Both companies were named, though not included as defendants, in a landmark legal case filed in the United States (US) on 17 December 2019 by the human rights law firm International Rights Advocates on behalf of 14 parents and children from the DRC against the electric car manufacturer Tesla and a number of technology giants – including Apple, Alphabet (the parent company of Google), Dell and Microsoft – for reparations and rehabilitation on account of forced labour. The parents state that some of the children had been killed in tunnel collapses while others had been paralysed or suffered life-altering injuries from accidents. In the case, the plaintiffs are also seeking compensation for unjust enrichment, negligent supervision and intentional infliction of emotional distress on the complainants. The case was still at an early stage at the time of writing.

The need to enforce clear human rights standards in the cobalt mining sector will only become more pressing as global demand increases. As countries work towards fulfilling their commitments under the 2015 Paris Climate Agreement, as well as more specific initiatives such as the 2015 Declaration on Electro-Mobility and Climate Change and Call to Action, demand for EVs – and therefore cobalt – is rising. Indeed, global demand for cobalt has already tripled in the past five years. In line with this trend, market

analysts estimate that, worldwide, car companies will sell around 2.5 million electric passenger vehicles in 2020, 20 per cent more than in 2019.

While this could bring considerable environmental benefits, the increase in EV production could have a corresponding impact on child labour in the DRC. Unless safeguards are built into cobalt supply chains – starting from local artisanal mines, and all the way to consumers purchasing cobalt-containing vehicles – thousands of children will continue to suffer exploitation, abuse and the risk of injury or death. If so, then the DRC will yet again bear the burden of global demand for its resources. This means more human suffering and environmental destruction so that more affluent countries can benefit from new technologies, while its own population continues to experience some of the lowest levels of development in the world.



About **60 per cent of the world's supply of cobalt** comes from the DRC. The mineral is used in batteries that power electric vehicles, as well as smartphones, tablets and laptops.

# Kenya: For Turkana pastoralists struggling with drought, mobile finance offers a lifeline

Hamimu Masudi



Etukoit, a Turkana woman with a child, walks out of her homestead. Turkana District, Kenya.  
Credit: Frederic Courbet



Living on the periphery of society, in one of the harshest, driest and hardest-to-reach north-western regions of Kenya, the Turkana people have come to be regarded as great survivors. Despite regular severe droughts, they manage to make a living by herding cattle, sheep and camels. They often have to walk long distances and dig wells in dry riverbeds to find suitable water for themselves and their animals.

However, the highly drought-susceptible region has been experiencing more frequent and severe drought conditions, linked to climate change, making it a humanitarian hotspot and a regular recipient of relief aid. For instance, in 2011 the region experienced what was described by the UN as ‘the worst drought in over half a century’, exposing more than 3.5 million Kenyans and 500,000 refugees to starvation. Malnutrition rates shot up to their highest levels in decades, with about 384,000 children suffering from acute malnutrition – along with 90,000 pregnant and breastfeeding women. In recent years, food insecurity has been made worse by escalating cattle raids that have led to significant livestock loss and displacement.

Although food aid has made up the bulk of emergency responses to crises such as those faced by Turkana, unconditional cash grants have become an important element in responding to both slow and rapid onset emergencies in recent times. As well as their flexibility, unconditional grants also allow

beneficiaries to choose where they allocate their resources and what needs they consider most pressing. Best of all, with the proliferation of mobile telecommunications services such as M-PESA, a mobile banking platform owned by Kenya’s Safaricom communications, this form of disaster response management can now happen in real time.



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In partnership with Safaricom telecommunications, the Kenya Red Cross Society is one of the many humanitarian aid organizations that has successfully adopted and mainstreamed the use of mobile technologies to transfer unconditional grants in emergency situations. The charity, which is widely accepted as a first responder in humanitarian crises, reported in 2017 that it had given a monthly grant of over 3,000 Kenyan Shillings to more than 41,000 drought-affected families (nearly 250,000 people) over a period of three months through the M-PESA mobile platform.

The digital transfer facility is user friendly, fast and affordable, and does not require relief aid recipients to hold a bank account: eligible community members only need to register their M-PESA phone numbers with the Kenya Red Cross Society. Once the charity has sent the grants into the 'mobile wallets' of eligible beneficiaries, the recipients can make digital payments for goods and services or they can withdraw physical cash at the nearest licensed M-PESA agent – the other component within the transfer cycle.

For humanitarian agencies as well as disaster-prone communities living in hard-to-reach locations, the transfer of grants via mobile technology has been a game changer in responding to emergency situations such as droughts. What is striking is that this has been achieved through partnerships between humanitarian agencies, telecommunication companies and commercial banks – an approach that appears to be increasingly common in the humanitarian sector.

This was best exemplified during the Turkana food crisis of 2011. In an innovative joint campaign led by Safaricom Foundation, Kenya Red Cross Society, Kenya Commercial Bank and Gina Din Corporate Communications, over 700 million Kenyan Shillings (approximately US\$6.5 million) was raised in cash and a further 300 million Kenyan Shillings (US\$2.8 million) in kind for the drought-affected Turkana communities. The campaign, which was branded 'Kenyans for Kenya' (K4K), used M-PESA and social media platforms to raise funds by attracting individual donors to aggregate their contributions towards the emergency response in Turkana. The K4K campaign subsequently won Kenya's top award in the Not for Profit Campaign of the Year.

For Turkana pastoralists, who face a long history of discrimination, inter-ethnic violence and further challenges related to the burgeoning oil industry in the region, a lasting solution to the social and environmental pressures on their traditional culture and livelihoods will need to extend beyond the immediate response to droughts, conflicts and other humanitarian emergencies. Nevertheless, given the serious threat of famine and displacement associated with these crises, mobile technologies offer a vital lifeline to these communities when they need it most – and, in the longer term, the possibility of lasting change.

# Tanzania: For people with albinism, hate speech and discrimination have moved online

Hamimu Masudi



Portrait of Emmanuel Silas Shadrack, a music artist and the first Mr Albinism East Africa.

In Tanzania, being born with albinism is the beginning of a lifetime of discrimination on multiple fronts. Ordinarily, people with albinism are impaired physically because their skin, eyes and hair lack melanin – the pigment that keeps ultraviolet rays from damaging DNA and vision, and potentially causing skin cancer. Moreover, due to negative social attitudes towards people with albinism, their full and effective participation in society is compromised.

According to Standard Voice, a NGO based in Tanzania, only half of children with albinism complete primary education and just 1 in 10 transition to secondary school.

In the worst case scenario, people with albinism may even be at risk of human sacrifice. This grisly practice, rooted in widespread superstitions that the body parts of people with albinism have magical powers, is thought to have claimed nearly 80 people's lives since 2000, with many others subjected to violent attacks. The majority of victims are children. According to the United Nations, ritual attacks against the community have been fuelled by fortune seekers, with victims kidnapped and their bodies dismembered by hired killers. After an upsurge in murders, the government of Tanzania weighed in to avert the terrible impact of such superstitions and banned witch doctors, the suspected culprits. However, people with albinism continue to live in fear and suffer deep-seated prejudice throughout their lives. Born in 1998 with albinism, Emmanuel

Silas Shadrack is no stranger to discrimination. Yet against all the odds, Emmanuel – who is also a music artist known by the stage name Mr Tiger – has risen from obscurity to become a well-known figure in Tanzania, following his inauguration as the first Mr Albinism East Africa in December 2018. 'After an intense competition, all the way from my home town of Geita in north-western Tanzania to Nairobi, Kenya, I was declared Mr Albinism East Africa,' he recalls. 'I was overwhelmed and I remember returning back home, and at the border crossing with Kenya, I received special attention – that is unaccustomed to people with albinism, like myself. On this occasion, my status had raised, after the whole world watched me on TV and social media.'

As a result of his win, Emmanuel saw a surge in the number of followers and likes on his social media accounts. 'During the contest I received a lot of positive comments [on social media accounts] wishing me good luck. And this increased several fold after I won the contest. I had to show gratitude and took time to

respond to each and every comment, thanking my fans for the support, as much as I could', he added.

The youngest of a family of five, Emmanuel's mother passed away early in his life, and together with his other siblings he was raised by his father. As a child with albinism, the challenges he faced were considerable. In 2008, for instance, his father had to make the difficult decision to move house to a safer neighbourhood after he survived an abduction attempt.

'It was tough for me, because I grew up during the time people with albinism were being hunted for the trade in our body parts. I was in class three when the issue became widespread and I could see that my own community was keeping a distance from me. No one wanted to be seen closer to me at any time because they didn't wish to be suspects or witnesses, in case I was abducted. They would hold community meetings over me and put pressure on my dad to remove me from the locality or hand me in to police for protection. It was about their safety, not mine.'

His account of the different issues he faced as a student highlights why so many children with albinism are forced to leave school at an early age. 'Attending school was another challenge, due to the long distance between home and school. I always arrived late for classes since, unlike the other school-going children, I couldn't leave home for school until it was 6.30 a.m., in the safety of broad daylight. There was a lot of bullying and name calling in school, plus there were no viewing aids to support my poor vision. The school teachers were equally not understanding of my

situation and subjected me to severe punishments every time I arrived late for classes. Eventually, with consent from my dad, I abandoned my education and stayed under the safety of my home and family.'

In addition to cracking down on the killings, the government of Tanzania has built schools and protection shelters for children with albinism in hotspot zones. However, Emmanuel does not think people with albinism are out of danger yet. 'We have been thrown a lifeline, but as long as the prejudice, stigma and discrimination carry on, it will count for nothing. We still feel, under the cover of darkness, we can get hurt because the social attitudes that fuelled the first wave of abductions are still in place. After years of neglect and being regarded as wicked, we are still traumatized. The general public and a great number among us [the people with albinism community] are still ignorant of albinism and that explains why the majority are not in school;



According to Standard Voice, a NGO based in Tanzania, **only half of children with albinism complete primary education** and just **1 in 10 transition to secondary school.**

why sun screens and viewing aids are not available to people with albinism; and why skin cancer continues to eat up people with albinism. We are still being called “ghosts” and all sorts of degrading remarks on the streets and in our communities.’

Although digital platforms and mobile technologies have grown exponentially in Africa, thereby stretching further the limits of human interactions, this is not necessarily the case for people with albinism. According to Emmanuel, the abuse, name calling and stalking that people with albinism experience on the streets has gone online too, unabated. Given the fact that cyber-hate crime monitoring is yet to be mainstreamed as a way of identifying and reporting the existence and scale of the problem, Emmanuel’s experience is no doubt common.

As an albinism ambassador, he spends a lot of time online. He reveals that, although it is difficult to determine how prevalent it is, online abuse targeting people with albinism is persistent. ‘I am very fortunate that I have come this far in life and to be appointed Mr Albinism East Africa, [that] exposed me and built my confidence to engage on all platforms and earn the respect of the public. But not all people with albinism are as lucky. We still go through a lot of stereotypical and veiled attacks on a daily basis, whether on or offline. Because people with albinism [are] a deprived group, we rarely engage online but when we do, we are “greeted” by the same offline debasing remarks.’

As people with albinism are still regularly targeted with hate speech, their main recourse is to attempt to block perpetrators on an individual basis or conceal their identity.

‘As a coping mechanism, you can delete the entire post that has received a cruel comment and post afresh, or if it’s a sustained attack, you block the account. Other times, for fear of being targeted, people with albinism will simply not use photos of themselves on social media. Instead photos of objects like vehicles, mountains, memes or animals will be used. That way you remain anonymous and won’t attract the attention of hateful people.’

Emmanuel argues that the situation of people with albinism in Tanzania will only begin to change once the long-standing myths around albinism are successfully dismantled, a caring environment is created and equal opportunities are extended to all. As a music artist, he wants to see people with albinism making it in the music industry – not on the basis of singing about albinism but on conventional issues such as relationships, love and conscience. That, he believes, will boost the self-esteem of people with albinism and the public perception of them will change, too. To this end, Emmanuel dreams of starting a music group of East African artists he competed with at the regional Mr and Ms Albinism contest in Nairobi. ■



**Americas**



In the Americas, beginning with the first colonial invasion, technology has all too often been a tool of oppression used to subjugate, exclude or exploit minorities and indigenous peoples. At the same time, a wealth of knowledge and innovation developed over millennia has been denigrated and destroyed, ranging from unique artworks and highly developed cities to traditional medicines and environmental stewardship.

Only now, belatedly, is the value of these approaches with regard to contemporary challenges such as deforestation, climate change and public health being more widely recognized. In the meantime, in resource-rich areas such as the Amazon, communities still struggle with the threat of mining, logging and newer forms of development, such as hydroelectric dams – projects justified for their production of ‘clean’ energy, yet often imposed on indigenous inhabitants without their free, prior or informed consent.

These issues are equally evident in North America where, despite greater affluence, both Canada and the **United States (US)** have disenfranchised minorities and indigenous peoples who are protesting the development of gas and oil pipelines on their lands. In the cities, too, different forces of discrimination are at play as entrenched patterns of racial discrimination continue to segregate ethnic minorities into poorer, under-served urban neighbourhoods. In San Francisco, this process has been accelerated by the booming tech industry: inequitable growth has pushed up the cost of housing drastically, while leaving many minority residents no better off due to limited employment opportunities in this sector.

For migrants from **Central America**, new technologies bring challenges but also opportunities. Those making the long journey north now contend with new threats: for instance, smartphones place them at greater risk of surveillance and interception from both organized criminal groups and migration officials in Mexico and the US. On the other hand, they also provide them with greater opportunities to keep in contact with families in their home countries, communicate with other migrants and gather information about their journey. These positive examples illustrate the possibility of a more inclusive future where technologies empower rather than exclude minorities, indigenous peoples and migrants. In **Ecuador**, for example, indigenous activists used social media to organize anti-government protests in October 2019 and more recently have employed these platforms to disseminate information on Covid-19 in local languages.

# Central America: For migrants crossing national borders or connecting across ‘the wall’, communication technologies play a vital role

Michele F. Ferris Dobles



Luis, from El Salvador, speaks to his daughters who are in the USA, from where he was deported. Arriaga, Mexico.

*Credit: Markel Redondo/Voces Mesoamerica*

Migration is part of the history of humankind: movement has always been a crucial factor in human survival. Although global migratory processes are not new, the world has entered an unprecedented period of human mobility, with the total number of international migrants reaching over 272 million in 2019 – around 3.5 per cent of the world's population, the highest number of international migrants ever recorded. Although different economic, political and social factors have played a role in this development, one element that is transforming migration at all levels is the use of information and communications technologies (ICTs).

Central America, a narrow isthmus located between continental North America and South America, is composed of seven countries: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua and Panama. A particularity of this region is that it presents very dense migratory flows – in fact, it is the largest migratory corridor in the world – with many heading to the US: some 3.5 million Central American immigrants are now estimated to be residing in the country. Large-scale migration began in the region in the 1970s and 1980s, during a period of widespread political uprisings and civil wars, continuing into the 1990s and 2000s as a result of violence and structural problems, including limited access to public services such as education, high unemployment and poverty. Central America also has some of the highest murder rates and number of gangs in the world, as well as deep social inequality and corruption, crucial factors that deepen social exclusion and drive people's decision to migrate.

Despite the fact that Central Americans are fleeing extreme situations of violence, they are still considered 'economic migrants' by the Mexican and US governments: this means they are categorized as migrating for economic purposes and not for survival, which makes it extremely difficult for them to apply for asylum and refugee status. This situation leaves them highly vulnerable as, without legal resources or protection, they are targeted by both authorities and criminal organizations. In this context ICTs take on a particular significance, enabling migrants to exchange messages and receive vital information as a means of avoiding deportation and other dangerous situations. In addition, given their very limited opportunities for securing refugee status or residency in the US, Central American immigrants are not in a position to visit their home countries – a condition that makes mediated relations and communication through technology essential for fostering family bonds across space and national borders.

At every stage of the migration process, from the journey itself to the everyday difficulties of life as an undocumented immigrant, technologies play a central role. For migrants themselves, the benefits and challenges go hand in hand, offering valuable sources of information and social support while also putting them at even greater risk of surveillance, deportation and criminal violence.

### Surviving the journey

The social and collective organization of transnational migration has changed profoundly with the advance of ICTs. One of the most striking and widely publicized instances of this is *las caravanas migrantes*, the so-called 'migrant caravans' that dominated headlines in US media in 2018 and were frequently invoked by President Donald Trump as a national security threat. Comprising thousands of men, women and children from Nicaragua, Honduras, El Salvador and Guatemala, the caravans primarily relied on mobile phones and applications such as WhatsApp to enable migrants making the long journey across Central America to the US to achieve safety in numbers and avoid the depredations of criminal gangs along the way. The caravans also served as a means to highlight the reality of families and communities displaced by protracted violence in their countries of origin: though grossly misrepresented by certain media outlets and vilified by right-wing politicians within the US, they nevertheless succeeded in attracting global coverage and increasing international awareness of their plight.

More generally, ICTs have amplified and intensified the ways people

communicate, interact and organize across national borders. This situation, while bringing many benefits for people on the move, has also created greater demands and expectations within migrant networks, at times provoking feelings of stress and anxiety around the need to be constantly available through these technologies. In this manner, faster and more frequent connectivity does not necessarily make transnational migration an easier or less painful experience. It is crucial to remain critical about the effects of ICTs, as the challenges of separation that many migrants face are not automatically alleviated by smartphones and social media.

Another important change that ICTs have brought to the traditional patterns and trends of migration is how they can shape, in real time, the migratory journey itself. Smartphones are locative and portable media: this means that, besides enabling connectivity and communication with friends and family, they are useful tools for navigation and information sharing during transit. This has meant that established migration pathways have now been redirected to follow paths of connectivity, with migrants favouring travel through areas where they can access an internet connection. In the process, every aspect of their journey has been transformed, from the physical routes they take to the ways they spend their money.

Through their smartphones, migrants have never had so much information at their fingertips, but at the same time they have never been so exposed to so much surveillance. In this regard, it is important to recognize that having access to a mobile phone and connectivity does not necessarily make

the migrant journey easier, particularly as others have also been quick to exploit these technologies for their own gain. For Central American migrants making the hazardous journey through Mexican territory, the threat of kidnapping and torture by organized criminal gangs is exacerbated by the collusion of corrupt police officials: when apprehended by gangs or the authorities, migrants are frequently asked to hand over their mobile phone in order to call family members in Central America, who are then coerced into sending money to secure their loved one's release.

Thus, while providing many benefits, mobile phones also pose new dangers for migrants. Once in the US too, these technologies can prove double-edged – offering a vital line of contact to the families and friends in their countries of origin, but at the same time increasingly co-opted by migration agencies as a tool of coercion.

## Life in the US as an undocumented migrant

Even once they have reached the US, Central American migrants continue to face profound challenges on a daily basis. Without documentation, their lives are frequently characterized by insecurity, isolation and the constant threat of deportation. Within this context, smartphones and social media have become important tools to cope with the difficulties of family separation, discrimination and persecution.

For migrants in the US, thousands of miles from their loved ones and with little prospect of seeing them in the foreseeable future, the mobile phone has become a crucial device for maintaining affective bonds across 'the wall' and national borders, a 'virtual proximity' that enables them to remain connected with their countries of origin. Through the use of ICTs,

Two migrants check a map at a migrant shelter in Arriaga, Chiapas. It is estimated that half a million migrants from Central America cross Mexico each year. Arriaga, Mexico.

*Credit: Markel Redondo/Voces Mesoamerica*



migrants create their own meanings that go beyond those designed by the developers of the technology, and that instead are created by their own needs, expectations and perceptions.

In the past, to remain connected, migrants and their family members in their countries of origin had to wait a long time to receive a letter in the mail or coordinate international phone calls that might happen once a month – both time-consuming and expensive options. ICTs now allow transnational communication and social interactions to be part of 'everyday' life, transforming the nature of the migrant transnational networks and their connections with their families. Migrant families and networks have never had so many possibilities within their interpersonal relationships for interaction and sharing.

Yet while migrants use technology to foster and strengthen their transnational networks and as devices for safety, information sharing and communication, government agencies and corporations have exploited ICTs for their securitization of the migration agenda. Indeed, the US government has invested millions of dollars in law enforcement, migrant prisons, tracking technologies and deportation facilities. In early 2020, for example, it was reported that the Trump administration had purchased data relating to millions of smartphone users from Venntel Inc. specifically for immigration enforcement purposes. Having acquired this data, federal agencies can access personal information collected through everyday use of smartphone apps in order to track undocumented migrants. The Immigration and Customs Enforcement (ICE) and Customs and Border Protection (CBP), two divisions

under the Department of Homeland Security (DHS), are reportedly now using this data to locate and arrest undocumented migrants in the US. This is far from being an isolated case: the data mining company Palantir's 'Investigative Case Management' (ICM) system has reportedly been used by ICE to track down, incarcerate and deport migrants, with activists accusing Palantir and other corporations which have supported its operations, including Amazon which hosts the ICM system on the servers of its Web Services division, of being complicit in the mistreatment of migrants in the US.

### **ICTs and migration: a mixed picture for migrants**

Whether making the perilous journey across Mexico or living in the shadow of surveillance in the US, technologies are both a blessing and a threat. Every undocumented migrant must reconcile these tensions and contradictions. The smartphone, for instance, can provide safety, information and emotional support while simultaneously provoking feelings of pain, guilt and frustration. It also brings new dangers and forms of exploitation. The study of the interconnections between ICTs and migration should recognize these complexities, as they are intertwined in the experiences of thousands of people migrating from Central America and elsewhere.

As with so many aspects of the migration experience, there are no easy answers. While violence and insecurity in Central America persist, migrants will continue to make the difficult journey to the US – and ICTs, whether as their ally or enemy, will be with them every step of the way.

# Ecuador: Indigenous activists are finding ways to use technology to secure their rights – but barriers remain

Gilda Paulina Palacios Herrera

Like many countries across Latin America, Ecuador is still struggling with the legacy of colonialism and the marginalization of its indigenous population. For decades, indigenous Ecuadorians have mobilized against the country's entrenched hierarchies and inequalities, with considerable success. One of the most significant milestones was the drafting of a new national Constitution in 2008, approved by referendum, that explicitly recognized the collective rights of its indigenous peoples, as well as its long-excluded Afro-descendant community.



Indigenous people react during protests against Ecuador's President Lenín Moreno's austerity measures in Quito, Ecuador.  
Credit: REUTERS/Henry Romero

Among other provisions, it acknowledged their unique identities, land ownership and their right to live free from racism, as well as the state's commitment to 'uphold, protect and develop collective knowledge', including 'their science, technologies and ancestral wisdom'. This last formulation is particularly striking, given the tendency for governments across the world to disregard traditional knowledge systems or, at best, see them through a folkloric lens – rather than accept them as living, contemporary worldviews with urgent relevance to many of today's most pressing challenges.

Despite the apparent progress signified in the 2008 Constitution, Ecuador's indigenous peoples – numbering some 1.1 million from a total of 14 distinct communities – are still struggling to secure these basic rights and freedoms. Their continued exclusion is reflected in the fact that almost two-thirds of indigenous Ecuadorians are living in poverty – a proportion that is three times higher than the level among their *mestizo* counterparts. This deprivation is in large part rooted in the dispossession of their most precious resource, their ancestral lands, and with it the rich biodiversity that for centuries has sustained their cultures, livelihoods and spiritual values.

The latest chapter in this saga of exploitation and discrimination is the threat posed by Ecuador's growing mining sector as companies, with the support of the state, have encroached on indigenous peoples' communal territory to extract oil, copper, silver, gold and other natural resources. In opposing these activities and their devastating impacts on health, food security and the environment, indigenous activists have complained that they

have been typecast as being 'anti-development' – a common trope that seeks to frame indigenous resistance as a movement against technological progress. At times, international supporters of threatened communities may unwittingly use the same dichotomy by contrasting indigenous traditions with the destructive impacts of corporations uprooting ecosystems for rare metals and fossil fuels.

While it is true that communities draw on long-standing knowledge and practices around environmental stewardship, indigenous perspectives in Ecuador and elsewhere are not static and continue to evolve. This is demonstrated by the use of new information and communication technologies (ICTs) by many indigenous Ecuadorians, despite significant inequities in access, including in human rights activism and community mobilization. This was evident in October 2019 during widespread demonstrations against a package of austerity measures proposed by the Ecuadorian government. Led by indigenous protesters, the demonstrations eventually pressured the government to abandon its planned rollback of public services. Their success was due in part to the effective use of social media, such as documenting incidents of violence by soldiers against civilians during the unrest.

It is true that new technologies, including the internet, can pose a threat of acculturation as individual languages and cultures are side-lined by globalized media and entertainment. Nevertheless, Ecuador's indigenous organizations have found ways to repurpose these technologies to overcome such



barriers. For example, in response to the lack of widely available information on the Covid-19 pandemic for non-Spanish speakers, the Confederation of Indigenous Nationalities in Ecuador (CONAIE) has been translating advice from the World Health Organization and disseminating it to communities using the hashtags #WasipiSakiri and #JeminPujusta, translating to 'Stay at home' in Kichwa and Shuar respectively.

While celebrating these activities, however, it is important to acknowledge the fact that the inequalities that indigenous Ecuadorians experience in other areas of their lives are also reflected in their access to new technologies such as laptops and smartphones. Affordability remains a critical issue for many poorer citizens, including a significant proportion of indigenous people, a situation reinforced by their educational exclusion. These disparities are especially stark for certain groups within the indigenous population,

such as people with disabilities, who experience multiple forms of discrimination: the proportion of those with disabilities among the indigenous population is significantly higher than among the non-indigenous population.

Some commentators have expressed concern that, if unequal access to ICTs among indigenous Ecuadorians persists, then their power to drive social change may in the future diminish. After everything that has been achieved in the last few decades, this would be disastrous. What we must do now is focus our efforts on improving access for all Ecuadorians to ICTs, but with a particular focus on ensuring that the disproportionate gaps experienced by indigenous peoples, those with disabilities and other marginalized groups are eliminated. This, more than anything, would demonstrate real progress – an approach where technological development and social inclusion go hand in hand.



Indigenous women stand outside next to a wall in Chimborazo, Ecuador.

*Credit: Stephen Reich*

# United States: Equitable smart city design in San Francisco

Mariah Grant

Since the late 1800s, California's northern coast has established itself as a hub of technological innovation, from the early days of aerospace to the present-day computer industry. From Apple and Google in the 1980s and 1990s, followed by Facebook and Uber since the turn of the millennium, many computer and tech industry leaders founded their businesses and maintain their headquarters in the area.

The clustering of these companies has had a significant impact on the Bay Area, which includes the urban centres of San José and San Francisco to the south and north, along with Berkeley and Oakland in the east.

San Francisco, in proximity to Silicon Valley and the tech-related funding that comes with it, has been a focal point for testing new technologies at the cutting edge of smart city design. As part of this effort, the city has implemented a wide range of projects to address issues such as waste management, established various 'green policies', including bans on plastic bags and the first

solar rebate programme in the region, and increased reliance on public transportation along with a transition to autonomous vehicles. The city and wider region have become known for concentrating on innovation and technology to problem solve. In many ways, San Francisco has taken to heart the common tech industry refrain, 'Move fast and break things', originally popularized by Facebook founder, Mark Zuckerberg.

Yet while San Francisco has been lauded as a pioneer in the move towards smart city development, the limitations of this approach to resolve deep-seated social problems



Louis, a 51-year-old resident of a single-room-occupancy apartment, sits by a street amid an outbreak of Covid-19 in the Tenderloin district of San Francisco.

*REUTERS/Shannon Stapleton*

are increasingly coming into focus. Indeed, the drive for greater liveability, efficiency and convenience has left many of the city's most marginalized residents far behind. One of the starkest examples of this is the ever-widening wealth gap in the city, most visible in the growing number of individuals living on the streets. For years, human rights groups have sounded the alarm at the deplorable conditions in which unhoused individuals have been forced to live.

In 2017, the UN Special Rapporteur on extreme poverty and human rights, Philip Alston, toured the United States (US), including San Francisco,

meeting people who are unhoused and the civil society groups working alongside them. Alston witnessed how cities like San Francisco are pioneering a technology called Coordinated Entry System (CES), which uses surveys conducted by caseworkers or volunteers to collect data and then computer algorithms to match unhoused people with available services. Following his visit, the Special Rapporteur noted that in San Francisco, 'many homeless individuals feel deeply ambivalent about the millions of dollars that are being spent on new technology to funnel them to housing that does not exist'. Innovations such as CES do

not get to the heart of the problem, namely the chronic shortage of affordable housing. A further issue with CES surveys is that they typically ask very intimate questions. In Los Angeles, for instance, the surveys ask whether the person being interviewed has engaged in sex work, forcing unhoused people to feel as if they must abandon their right to privacy in order to gain their right to housing.

An issue specific to the San Francisco CES is that families living in overcrowded accommodation in so-called Single Room Occupancy hotels (SROs) are downgraded to low priority by the system's algorithms, despite the fact that families with children are crammed into typically 2.5 m × 2.5 m rooms originally built for single adult residents. Forty per cent of the rooms in San Francisco's SROs house four or more people. According to US federal government guidelines, families living with children in SROs are still considered homeless and in

need of permanent housing, because the accommodation is not intended for them. This is not the case with San Francisco's CES, thereby excluding the majority of homeless families. There is a stark ethnic dimension to this too: 62 per cent of the city's SRO families are immigrants. Not surprisingly then, in 2018 the Special Rapporteur released a report that called the conditions in which unhoused individuals in the Bay Area live 'cruel and inhuman', with many denied basic needs such as water, sanitation and health care.

For Carla Mays, an analyst and planner in smart infrastructure and hazard mitigation as well as co-founder of #SmartCohort, a global 'do-tank' helping to design and build smart and resilient cities for all, the current 'dystopia' being realized in San Francisco is not just a consequence of moving too quickly into the future. It is also the result of an approach that leaves the injustices and systemic racism of the past and present unaddressed. Born in California, Mays grew up near Los Angeles, but has called the Bay Area, and frequently San Francisco, home for the past two decades. During this period, she has witnessed first-hand the transformation of the region and in recent years has been advising on ways to promote more sustainable, equitable smart city design.

As part of this work, Mays has travelled throughout the US and the world, learning from other communities and cultures about how smart cities and the technologies they engage can be implemented thoughtfully to limit, instead of exacerbate, inequity. For instance, she looks to Singapore as a guide to being a multicultural



In San Francisco, **62 per cent of families** that live in overcrowded Single Room Occupancy hotels (SROs) **are immigrants** - a stark ethnic dimension.

society where the government has integrated smart city design in a way that engages residents' differing needs, from its housing schemes to public transportation. Mays notes how, in big and small ways, Singapore finds tech-based solutions that are yet to be seen in San Francisco. For example, within the Chinese communities of both cities, it is common for older residents to travel almost daily to the city's respective Chinatowns; Mays explains that 'in Singapore they had designed the transit system so that these seniors could get around', while in San Francisco this community-responsive transit infrastructure is lacking.

Throughout the US, and particularly in major cities such as San Francisco, Seattle, New York and Washington DC, Mays has witnessed a tendency to rely on neoliberal policies that focus on the cost-saving possibilities of tech innovation over their effects on society. She emphasizes how such policies at best ignore and at worst exploit the foundational racism and sexism in the US. She points to how smart city design in San Francisco has not successfully addressed the ongoing social and economic impacts of its history of exclusion and discrimination: the impact of slavery on the African-American community, the genocide and displacement of indigenous communities, specifically the Ohlone tribe native to the land the city occupies, as well as the undervaluing and exploitation of Asian immigrants like the Chinese who worked on the railways and in agriculture during the gold rush, later targeted under the Chinese Exclusion Act. By bringing up these issues, Mays seeks to shine a light on

*'We are not with clean hands and we like to look around and look at [what] other people [are doing wrong], but our country is built on slave labour and we're not exactly doing a lot of good things right now in tech.'*

Carla Mays

the human rights concerns that must be considered if smart city design is to be genuinely inclusive and equitable.

Mays also observes that in highlighting the successes of multicultural smart city design in Singapore, she cannot ignore that country's own human rights issues, including infringements of freedom of expression and the press, as well as legally codified discrimination against LGBTQ+ individuals. But, she clarifies, 'In the US we have a real finger-pointing problem', wherein the country looks to patrol the human rights record of other countries while simultaneously committing violations both domestically and abroad. As Mays describes, 'We are not with clean hands and we like to look around and look at [what] other people [are doing wrong], but our country is built on slave labour and we're not exactly doing a lot of good things right now in tech'.

At present, access is not provided equally to the benefits brought by the tech industry to the Bay Area. Mays specifically points to online platforming for San Francisco's affordable housing



Carla Mays, co-founder of #SmartCohort, a global 'do-tank' helping to build smart and resilient cities for all.

*Credit: JD Lasica*

services and the emphasis on credit card use over cash to pay public transportation fares. She notes that, increasingly, people need access to capital and the internet to benefit from smart city innovations. Yet more than 100,000 San Francisco residents do not subscribe to home internet and almost half of adult housing shelters in the city do not have wireless internet. As a result, many of the individuals the online affordable housing portal is supposed to benefit do not have a regular or consistent means to access it. Mays also notes limited efforts to educate residents on how to use the portal: while some community organizations (particularly Russian, Chinese and Jewish ones) have undertaken outreach and training to make up for what the city has not provided, fewer African-American and Hispanic community-based organizations have had the resources to provide this specific support.

There is a broader context of profound social inequality. Within the US as a whole, the lifetime wealth

accumulation of white households is seven times higher than for African-American households and five times higher than for Hispanic households. These economic disparities are even sharper for women from these communities: as of 2018, the median weekly earnings of African-American and Hispanic women were only 65.3 per cent and 61.6 per cent of white men's median weekly earnings, respectively. In San Francisco, this inequitable distribution of wealth is one factor creating the staggering over-representation of African-American residents among the homeless population: despite making up less than six per cent of the city's population overall, African Americans make up 37 per cent of the city's homeless population. Mays also traces a line back to historical factors that purposefully restricted or barred ethnic minority groups from certain labour markets and formal banking systems.

In part, her solution is to meaningfully rectify the wrongs of the past that continue to harm people today. She advocates for reparations to address the legacy of economic disenfranchisement created within African-American communities as a result of slavery and generations of repression, from over-policing to mass incarceration. 'You have to level the playing field,' she says, 'and the only way to level the playing field is if you give capital and access to capital so people can start a business, they can start a non-profit, they can buy a house.'

Mays also calls out what she sees as an ineffectual focus on implicit bias within self-described progressive and politically liberal (and usually majority white) circles. She provides

the examples of tech companies mandating training on implicit bias that does little more than put white experience at its core without changing the extreme under-representation of women and people of colour in their workforces. 'Every liberal', she says wryly, 'will start a meeting talking about [being on] Ohlone land but they will not give them any capital or land back.' These examples made her recognize how racism has manifested itself differently within San Francisco and other liberal US cities compared to the overt forms she has experienced in the more rural south-eastern part of the country, a region often identified as the epicentre of the country's racial inequity and tensions. 'The new Jim Crow is actually much uglier because it feels friendly,' she says. 'It's the Brooklyn, it's the Oakland, it's the San Francisco, it's the Portland type of racism and sexism, and the things that happen are more dangerous in that context because there is a lot of masking [of the racism and sexism] and then it goes into systems which disenfranchise and cause people not to be employed, not to get housing, not to be able to take transit.'

To effectively upend this new form of systemic racism, Mays pushes for greater diversity of representation within corporations, tech companies, universities, non-profits and the government. According to her, there can no longer just be 'a lot of nice talk' about equity and inclusion. To ensure that technology, as it continues to enmesh itself in everyday life, does not further entrench systems of racism, sexism and exclusion, all members of society should be present in positions of power.

*'You have to level the playing field and the only way to level the playing field is if you give capital and access to capital so people can start a business, they can start a non-profit, they can buy a house.'*

Carla Mays



In the US, lifetime wealth accumulation of white households is **seven times higher than for African American households** and **five times higher than for Hispanic households.**

**United States: ‘If we continue to place our own individuality at the centre of our existence we will collapse on ourselves’**

Alicia Kroemer

A portrait of James Walkingstick, an activist from the Cherokee Nation and board member for LEAD Agency.





James Walkingstick is a young activist from the Cherokee Nation, currently working, alongside his social anthropology studies at Harvard University, as a board member for LEAD Agency (Local Environmental Action Demanded, Inc.). This group advocates for environmental justice in north-east Oklahoma, focusing on Tar Creek. A legacy of lead and zinc mining, as well as asbestos pollution, has resulted in its designation as one of the first and worst of the country's 'superfund sites' – extremely hazardous areas where clean-up is funded by the Environmental Protection Agency (EPA). He shared with Alicia Kroemer the value of *Gadugi*, a Cherokee word which embodies a vision where multiple generations come together and harness indigenous knowledge to address global issues.

### *How does LEAD Agency apply traditional indigenous knowledge to address current issues like climate change?*

LEAD Agency was founded in 1997 as a response to the Tar Creek Superfund Site. This site was the largest lead producer during the First World War, supplying over half of the bullets used in the war. The mine shafts were abandoned shortly after the Second World War and they flooded with water. In the 1980s, water began seeping out of the shafts and into our local creeks. This water was contaminated with cadmium, zinc and lead – all of which are highly toxic pollutants. The water subsequently oxidized and turned red, which led those living in this area to become ill. We are deeply concerned about the health risks associated with water heavily contaminated with lead.

LEAD Agency fought against the contamination and worked to protect citizens and our water source. LEAD took up the initiative to get the EPA involved, bringing in the government and various organizations to clean

the Tar Creek Superfund Site. It happens to be in a location where over ten tribes reside. The contamination directly and disproportionately affects Native Americans. The Cherokee Nation founders of LEAD – Rebecca Jim and Earl Hatley – wanted to implement their indigenous knowledge by working together as a community to do the clean-up.

The indigenous knowledge that the founders strongly pushed was *Gadugi*, which is the Cherokee value of coming together as one and working together to accomplish a goal. This value has been with our people for millennia. Our people came together to harvest crops, settle negotiations and build networks with this value. Even the root of the word, *Gadu*, means bread – a food item that requires collaboration to craft.

Through *Gadugi*, our agency has been able to reach out and achieve positive outcomes for all tribes involved. We have been able to make it a harmonious, collaborative effort. While the site is on Quapaw tribal land, all surrounding tribes are getting involved and helping LEAD Agency push the issues to

As for innovation, the **Peoria Tribe has invested nearly US\$400,000** in a new medical centre for Native nurses, along with upwards of **US\$1 million in scholarships**. The Cherokee Nation, Modoc Nation and Quapaw Nation all possess prospering herds of bison, with the hope of nurturing a growing industry.

the forefront. We are bringing in other agencies, like the Department of Environmental Quality and the EPA.

Through the value of *Gadugi*, we have been able to come together and protect our water, our most sacred relation. The Cherokee people are people of the creek – we go to the water for ceremony. We use water in our everyday life; clean water is vital for our communities. We have taken every action to protect it. To negate pollutants, we have also implemented food sovereignty. The site has created giant piles of toxic *chat* around Tar Creek – waste produced from lead mining. These *chat* piles have spread enormous amounts of poisonous dust around the area and many local crops are affected. This means our food sources remain at high risk. We use food sovereignty as a way of counteracting this. We aim to control what we eat through growing traditional indigenous foods that sustain us. We are using the methods that we have always known in our communities. If a yard is

contaminated with lead but a person wants to grow vegetables in their garden, we raise crops up by one or two feet above the soil to keep them safe, using mulch and compost as counteragents. This is ancient indigenous knowledge being practically applied. By using this knowledge today, we are able to combat lead contamination.

We are also trying to solve the issue of massive environmental inequality on tribal land. A recent study by the EPA found that our traditional plants (arrowroot and duckweed – found along Tar Creek) contain over 7,000 times the safe amount of lead, compared to baseline plants. These plants are consumed only by Native Americans. Our alleyways and playgrounds have been paved with chat. Recent studies have shown that a third of our Native youth have been diagnosed with lead poisoning. We know we need to advocate for ourselves and our tribal communities.

*In terms of technology, innovation and access, how can traditional indigenous knowledge be applied in each category?*

There are myriad ways we can implement what we know, but I think the heart of it is our sovereignty. If we want to be innovative, create access and use our technology for a sustainable future, we need to look at our sovereignty first as nations. Our connected tribes have been reaching out in new ways to create a better future. With regard to technology, look at our use of solar panels: the Quapaw Nation has been building them on tribal land, especially around the superfund site. We have

already recovered over 800 acres of polluted land by remediating the soil and eliminating the presence of toxic chat. We are creating new ways for sustainable energy for the tribe. The Cherokee Nation uses hydroelectric power with the world's longest multi-arched dam. Through the Pensacola Dam we can provide tribal citizens with hydroelectric power and fight our reliance on fossil fuels to power homes.

LEAD Agency is playing a direct role by advocating for communities upstream of the dam, ensuring we receive clean energy and safe lake levels. We have been pushing toward a future that is combating climate change. As for innovation, the Peoria Tribe has invested nearly US\$400,000 in a new medical centre for Native nurses, along with upwards of US\$1 million in scholarships.

The Cherokee Nation, Modoc Nation and Quapaw Nation all possess prospering herds of bison, with the hope of nurturing a growing industry. We are all working together. While the value of *Gadugi* is a Cherokee value – it connects all tribes and nations. We are carrying that same value by different names. The sovereignty that we use can push us forward, push us away from fossil fuels, push everyone into a cleaner future.

Another Cherokee value that we hold is *Detsadalignenvdisgesdi*, the value that we take responsibility for each other. We watch out for one another and highly value the wellbeing of one another. It is not limited to our tribe or our identity: this is a value which is universal, timeless and necessary for the survival of humanity. This responsibility is vital for our future



Rebecca Jim, Founder of LEAD Agency sifts through Tar Creek. Credit: Ian Maule, courtesy of Culture Trip (2019)

'Involving our youth in sustainability and teaching them our values is extremely vital. If we want a clean future, we cannot just focus on ourselves in the moment, we need to focus on how we transmit these values to the next generation – from Elders to youth.'

*James Walkingstick*

and for addressing inequality. If we continue to place our own individuality at the centre of our existence we will collapse on ourselves. It is through *Gadugi* and caring for our community that we truly thrive and survive. You must have that right mind and heart to combat inequality.

*Why is it important that the next generation of indigenous youth prioritize transmission of knowledge in addressing modern problems?*

Our youth are the future. Within North American tribes, we share the value of the seventh generation (though by many different names). It is an inter-tribal value that we must care for the seven generations ahead. It means creating a positive future for your children and your children's children; to create an environment where they can sustain themselves. Involving our youth in sustainability and teaching them our values is extremely vital. If we want a clean future, we cannot just focus on ourselves in the moment, we need to focus on how we transmit these values to the next generation – from Elders to youth.

This is a problem that we face here in the Cherokee Nation, due to language loss. Our language has been diminished by colonial institutions and because of this we have lost many of our values and traditional knowledge. Right now, we are cultivating a comeback and building on language preservation programmes. Last year we lost our last monolingual Cherokee speaker, Mack Vann.

When we lose our language, we lose our values, and we lose *Gadugi*. When we teach youth our language, they learn the values inherent within our culture – what our people have been doing for thousands of years. When our youth step up and reach out they help the community in so many ways. We will have a bright future ahead of us if the youth know their values and build on that knowledge, applying it into the future. The pathway to a sustainable future is rooted in *Gadugi*, turning from individuality to the collective. Even if we feel alone, we are a part of the community of humanity, who have the privilege of existence on this planet. Let us live through *Gadugi* and care for each other – by ensuring green and sustainable practices are the default global shared value – for those who will be living on this planet when we no longer are. ■



# Asia and Oceania

In Asia, long-standing inequalities, power imbalances and the continued impact of colonialism have resulted in a situation where advanced technologies and profound marginalization can exist side by side. This situation is often exacerbated by the involvement of global corporations seeking to extract ever more natural resources from the region.

In the **Pacific**, where poverty remains widespread and indigenous communities struggle with rising sea levels, natural disasters and loss of livelihoods, numerous mining companies are poised to begin mining the deep seabed for nickel, cobalt, manganese and copper – all valuable metals prized for their use in technology industries – in what has been described as ‘the new gold rush’.

The challenges around technology and human rights are especially stark in contexts where minorities or indigenous peoples are actively targeted by their own governments. This is the case in Xinjiang, **China**, where millions of Uyghur Muslims are subjected to monitoring and surveillance through biometric databanks, facial recognition, DNA testing and CCTV. Privacy concerns are also emerging in different forms across the region. In **Pakistan**, for instance, activists worry that increased data collection by authorities and telecommunication companies in response to the Covid-19 pandemic could be used to target religious minorities and other groups in future. However, persecution and violence can also be enabled through ‘grassroots’ technologies that are widely available to all. In **India**, for example, in a wider context of impunity for perpetrators of violence against minorities, the messaging platform WhatsApp is being used by far-right Hindu activists to spread misinformation and incite violence against Muslims, Dalits and other groups.

Minorities and indigenous peoples in Asia are among the most marginalized groups in a region where poverty remains widespread and is often exacerbated by stigma. In this context, the potential benefits of technologies are considerable, but some of those with the greatest needs continue to be overlooked. In **Nepal**, people with disabilities from minority and indigenous backgrounds face multiple challenges, but are still regularly unable to access appropriate, affordable assistive technologies due to lack of resources and discrimination. Yet, as elsewhere, minorities and indigenous peoples have also been using technologies to support their rights activism: for example, in **Cambodia**, indigenous Kuy in Prey Lang forest have partnered with non-governmental organizations and researchers to monitor and record illegal logging using smartphones.

# Cambodia: Protecting indigenous resources with a community-based monitoring app

Nicole Girard

Cambodia's forests are being pillaged to feed demand for luxury lumber in Vietnam and China, decimated for industrial agriculture, such as rubber plantations, and cleared for mining exploration. Deforestation rates in Cambodia are among the highest in the world: Global Forest Watch estimates that from 2001 to 2018, Cambodia lost 2.17 million hectares of tree cover, equivalent to a decrease of 25 per cent.

Prey Lang forest is the largest remaining lowland evergreen forest complex in mainland Southeast Asia, comprising 500,000 hectares spanning four provinces in the central plains of Cambodia, home to an astounding array of endangered species and approximately 200,000 indigenous Kuy people. Despite being declared a Wildlife Sanctuary by the Cambodian government in 2016, logging in Prey Lang has continued, with deforestation rates inside protected areas in Cambodia consistently as high as those found outside.

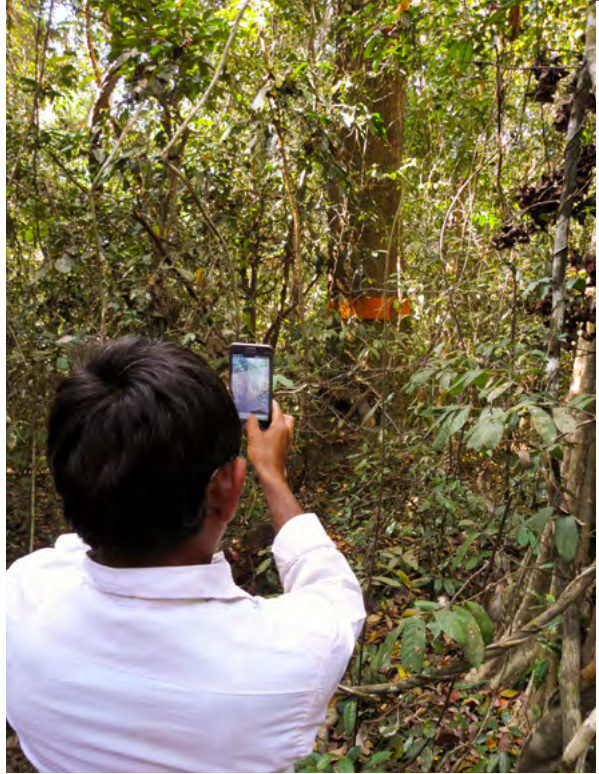
Indigenous Kuy, who rely on these forests for their livelihoods, through collecting resin and other non-timber forest products, as well as their spiritual and cultural identity, have been collectively organizing for protection of the forest. Formed in 2007, the Prey Lang Community Network (PLCN) brought together concerned community members and combined efforts to protect the forest. One of their main activities has been forest patrolling, whereby groups of community volunteers informally track illegal forest activities, alerting authorities, damaging cut timber and confiscating logging equipment.



Their monitoring efforts, while dedicated and driven, depended on an informal handwritten data collection system that made it hard to produce up-to-date, integrated information on the situation. In 2014, through a partnership between PLCN, faith-based NGOs Danmission and the Peace Bridges Organization, a local environmental rights NGO, Community Peace-Building Network, the University of Copenhagen and local IT company Web Essentials, a community-based monitoring mobile application was developed to address their needs.

The app – known as the Prey Lang App (PLA) – has gone through a series of redesigns through continuing engagement with community monitors, winning four international awards, and in 2019 was rolled out for use in another forest monitoring network, the Preah Rokar Forest Community Network. The PLA has been considered such a success, both by the PLCN and the researchers at the University of Denmark, specifically because community input was prioritized through a participatory needs assessment process, starting from its initial design and continuing throughout the multiple versions that were tested and tweaked through community feedback.

The app needed to be designed to meet the specific needs of local users, some of whom were illiterate or unfamiliar with smartphones, and at the same time reduce the lag between the collection and publication of content to ensure a reliable, up-to-date visual and audio database. Through using the Sapelli Platform, open source technology specifically designed for users with limited technological literacy, the team came up with a forest crime monitoring app that collected three



A man photographs a marked tree in the Prey Lang forest.

*Courtesy of Nerea Turreira Garcia.*

types of information: reference data (metadata including time and date, GPS coordinates and phone ID), primary documentation data (incident documentation with photo and/or audio) and thematic tagging of the logged data. The newest version of the PLA includes tagging for *activities* (such as instances of illegal logging and hunting), *resources* (forest products used for cultural or livelihood activities), *reporting* (monitoring interactions with authorities) and *climate* (unusual changes in natural cycles and local adaptation strategies). The data is then automatically uploaded to a centralized online database using existing cell phone networks, which is then validated by a data management team at the University of Copenhagen



Men stack timber from a recently felled tree in the Prey Lang forest.

*Courtesy of Nerea Turreira Garcia.*

and used to compile monitoring reports. Security features in the PLA are relatively new, incorporated as a result of incidents of violence or threats of violence from loggers or local authorities against PLCN monitors.

'The patrollers can report incidents of violence or potential threats that they received, from loggers, authorities or other groups', explains Dimitris Argyriou, one of the project team members.

'The entries can include information on the date and time of the incident, the location, the perpetrator, the people that were present at the incident and more.'

After the PLCN had used it for two years, the University of Copenhagen team analysed the app's success and challenges in its practical application.

They found that the monitors had made a total of 10,842 entries related to forest resources and illegal logging. Forty-two per cent (4,560) of these entries were validated by the external data managers, yet 46 per cent (4,979) were excluded because of a technical error, while only 12 per cent (1,303) were excluded because of a human error. The main problem contributing to the technical errors was limited availability of a mobile network in the forest, which made it difficult to upload entries with multiple pictures. Lack of a reliable mobile network was also cited by forest monitors as a key drawback. One of the PLCN patroller survey respondents cited in the study commented: 'It is not possible to get a signal in my village and I have to

travel to Thala Barivat [Stung Treng Province] to get a signal strong enough to upload my data. Therefore, my phone memory is often full.'

Other issues cited in the study include challenges with long-term sustainability, including maintenance of phones and software, and the reliance on an external team to validate the digital data which could prove expensive. Overwhelmingly, though, the findings were positive, with the study reporting no significant problems in terms of the accessibility for the community despite its complexity. Furthermore, there appeared to be no meaningful differences in the proportion of validated entries across gender and age groups, overturning suspicions that the introduction of information technologies for monitoring would favour younger male users at the expense of other groups.

Besides rolling out the PLA to other community forest monitors in Cambodia, the team continues to strengthen the functionality of the app. 'We are currently working to incorporate satellite-based information that will make the patrols more efficient', Argyriou explains. 'Also, we will try to identify the reasons for forest clearings as well as hot-spot areas for logging. We could definitely advance our user experience more and automate the data management web-app but these are secondary targets.'

As recognized by MRG and many other indigenous and environmental rights organizations, ensuring indigenous rights to land and resources is one of the most successful means to preserve the integrity of natural

ecosystems, and technology such as the PLA is helping to realize that goal. The monitoring reports produced by the PLA are the most extensive source of data on illegal logging in the Prey Lang forest, offering an invaluable resource for advocacy and awareness raising. The app has also proven itself to be a cost-effective method of forest monitoring when compared to the use of professional forest rangers. As the indigenous Kuy of Prey Lang continue to struggle to secure official recognition of their collective stewardship and land tenure over their ancestral forests, the PLA is proving to be a crucial tool to advance that goal, establishing the necessary data collection systems to create an effective approach to forest management.



Global Forest Watch estimates that from 2001 to 2018, **Cambodia lost 2.17 million hectares of tree cover**, equivalent to a decrease of **25 per cent**.

# China: International firms are benefiting from Chinese technologies used to persecute Uyghurs and other minorities

Michael Caster

In China, the rapid development of artificial intelligence (AI) and other high-technology surveillance has fuelled gross human rights violations against ethnic and religious minorities, especially the mainly Muslim Uyghur and Kazakh populations of the Xinjiang Uyghur Autonomous Region (XUAR). Despite growing pressures to hold Chinese firms accountable, many of these technologies have also been developed through investments by and partnerships with foreign entities and academic institutions based in countries with supposedly positive human rights records.

## China's frontline laboratory for surveillance

In November 2019, the United States (US) Commerce Department blacklisted 28 Chinese entities for their role in the 'implementation of China's campaign of repression, mass arbitrary detention, and high-technology surveillance' in Xinjiang. The list of banned firms now includes the regional Public Security Bureau, subordinate government agencies and a number of commercial firms, including Hikvision, Dahua Technology, iFlytek, Yixin Science

and Technology Co. and others. Many of these entities are either wholly or partially state-owned and at the centre of China's rapid development of surveillance infrastructure.

Hikvision, the world's largest video surveillance firm, has many contracts with police in Xinjiang, including security cameras at some of the internment camps where over 1 million Uyghurs have been forcibly detained, as well as big data centres and drone operations. In fact, since Chen Quanguo, the architect of these mass



Customers shopping at a Huawei store, a Chinese multinational technology company. Shenzhen, China.  
Credit: SOPA Images Limited / Alamy

surveillance and detention policies, assumed the role of Xinjiang Party Secretary, a position he had previously held in Tibet, Hikvision and Dahua Technology have won more than US\$1 billion in government contracts in the region. Despite this, and even as the US was banning Hikvision for its role in human rights abuses, news reports were emerging that the US government had itself been a repeat customer, with thousands of the cameras produced by these companies still installed in military facilities across the country.

Huawei, the telecommunications giant embroiled in numerous legal battles with the US over espionage and national security concerns, likewise has extensive government contracts with the Public Security Bureau in Xinjiang, including the establishment of an 'intelligent security industry' innovation lab. However, Huawei has previously misrepresented the extent of its partnerships with the security sector in the region to hide involvement in human rights violations. This happened, for example, before the British House of Commons in



The United Nations (UN) Guiding Principles on Business and Human Rights **call on businesses to prevent and mitigate the actual and potential human rights abuses** associated with their business practices.

June 2019 and, despite these human rights concerns and pressure from its intelligence allies, in January 2020 the British government initially announced it would allow Huawei a limited role in the development of 5G networks in the United Kingdom (UK). It then reversed its stance in July 2020, following new sanctions imposed on Huawei by the US government in May. However, the British change of heart was not motivated by Huawei's involvement in Xinjiang, but rather by other diplomatic and domestic security concerns. Other Chinese technology firms involved in Xinjiang include Megvii Technology, SenseTime and ByteDance, which is the parent company of the popular video-sharing app TikTok.

A November 2019 leak of internal Communist Party documents, obtained by the International Consortium of Investigative Journalists, reveals how many of these companies are using big data and AI to perfect new forms

of repression. Machine learning, a driver of AI, thrives on data, and for surveillance technology this is often biometric data such as photographs for facial recognition, or fingerprints, iris scans, voice recordings and DNA samples, all of which have been forcibly mass collected from Uyghurs and other minorities across Xinjiang and elsewhere in China. In this context, Xinjiang has become a laboratory of sorts for the Chinese government: in other words, the mass internment of Uyghurs and other minority groups is both fuelled by the rise in technology and feeding into its evolution in an authoritarian feedback loop.

The technologies tested on and used against minority populations in Xinjiang and across China are also increasingly being deployed outside the country. As China rushes to be the world leader in AI, for example, it has taken to exporting its knowledge and tools. According to Freedom House, out of some 65 countries it surveyed in 2018, 18 were exploiting Chinese AI technology to control and monitor their populations. Many, unsurprisingly, are also countries with poor human rights records of abusing their ethnic and religious minority or indigenous populations, from Pakistan to Zimbabwe. In January 2019, Brazil's President Jair Bolsonaro sent a delegation to China to learn about surveillance technologies, and discussed a bill to make facial recognition surveillance compulsory. Worryingly, the Chinese firm Cloudwalk has agreed a deal with the Zimbabwe authorities, whereby it will receive the biometric data of millions of Zimbabweans in order to help improve the recognition of persons with darker skin tones by its AI technologies. This



Uyghur women stand outside in their neighborhood in Urumqi, capital of the Xinjiang Uyghur Autonomous Region, China.  
Credit: Adam Dean / Panos

will strengthen China's own surveillance technologies, as well as those of other governments that are clients of the firm.

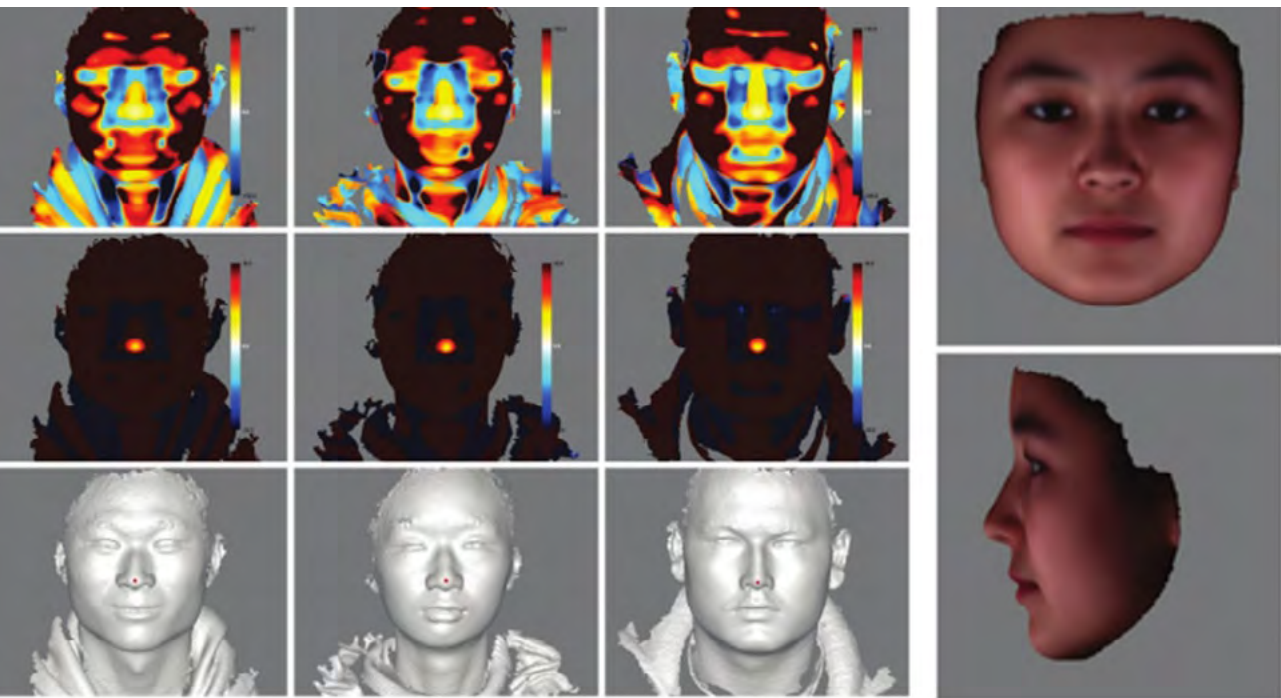
At the same time, companies and universities from countries that supposedly respect human rights have contributed to the development of, or made economic investments in some of these technologies. This arguably makes them parties to human rights violations.

### **Global accomplices: the US and European firms benefitting from human rights abuses**

The United Nations (UN) Guiding Principles on Business and Human

Rights call on businesses to prevent and mitigate the actual and potential human rights abuses associated with their business practices, with additional international frameworks placing further emphasis on technology and human rights.

In May 2019, for example, the Organization for Economic Co-operation and Development (OECD) adopted Recommendations on Artificial Intelligence, citing the Universal Declaration of Human Rights, which establishes the rights to privacy, freedom of religion or belief, and prohibits discrimination and arbitrary detention, among others. China, as an OECD member, however, has not endorsed these recommendations.



Images from a study in 2013 on 3-D human facial images. Credit: BMC Bioinformatics, sourced from *The New York Times*.

Because of mounting evidence of actual human rights abuses associated with these technologies in Xinjiang, and arguably the difficulty of separating legitimate technological developments by many Chinese firms from their potential for abusive applications, it is almost impossible for any such partnerships or investments not to be in violation of human rights standards. And yet many firms in the US and Europe have done business with these Chinese technology entities, profiting from what the UN Committee on the Elimination of Racial Discrimination has called a 'no rights zone'.

In February 2019, Massachusetts-based biotechnology firm Thermo Fisher Scientific announced it would end sales of its genetic sequencing equipment in Xinjiang but does not appear to have stated conclusively whether it will end sales of its products to other areas in

China. Thermo Fisher is not alone in assisting China with DNA sequencing. Yale University School of Medicine Emeritus Professor Kenneth Kidd has also collaborated with the Chinese Ministry of Public Security in Uyghur-targeted genetic research, but claimed he thought the genetic data had been sampled with consent. Although Kidd's research partnership with the Chinese government had begun in 2010, before mass internment, even a cursory understanding of China's abusive policies towards minorities should have raised red flags concerning the nature of such collaboration. The German Max Planck Society has also supported genetic research in China. Although they are no longer involved in this research, the negative impact has already been done. China, for its part, has used the genetic technology and skills it has developed in partnership with these groups to



experiment with predictive technologies capable of determining from a DNA sample whether someone is a Uyghur, and even to produce a computer-generated map of that person's face.

At the same time, through companies like iFlytek, Megvii and SenseTime, China has developed advanced AI voice and facial recognition technologies to monitor and control the Uyghur population. Again, such firms have also entered into partnerships with Western institutions. For instance, in 2018 the Massachusetts Institute of Technology (MIT) launched research partnerships with iFlytek and SenseTime, both of which have since been blacklisted in the US over human rights concerns. In February 2020, MIT cancelled its partnership with iFlytek, but did not say why: although it announced in October 2019 that it was reviewing its partnership with SenseTime, at the time of writing it appears to still be under review.

The German technology powerhouse Siemens has a branch office in Urumqi, the Xinjiang capital, and maintains an advanced technology 'strategic cooperation' with China Electronics Technology Group Corporation (CETC), a state-owned military contractor which happens to own a significant stake in Hikvision. CETC is also behind the development of a major predictive policing system identified in a May 2019 report by Human Rights Watch as one of the main systems used for mass surveillance and detention in Xinjiang.

The American firms Seagate Technologies and Western Digital Corp have sold hard drives to Hikvision and other surveillance firms operating in

Xinjiang but have denied their culpability, with one Western Digital spokesperson claiming that, while they recognized 'the gravity of the allegations related to surveillance in the Xinjiang Province', the company did not sell its products to the Chinese government. This defence is hollow in light of the responsibilities of these firms under international human rights frameworks to mitigate actual and potential human rights abuses associated with their business practices, given the impossibility of separating the actions of private and state-owned firms in the context of China.

Similarly, Hewlett Packard owns nearly 50 per cent of New H3C Technologies Co. Ltd, which develops tools for law enforcement, with a November 2019 Wall Street Journal report identifying several internment camps in Aksu as customers of this technology. But while a spokesperson for Hewlett Packard Enterprise confirmed that IT equipment had been sold to authorities in Xinjiang, it attempted to distance itself, noting it



Hikvision, the world's largest video surveillance firm, has contracts with police in Xinjiang, including security cameras at some of the internment camps where over **1 million Uyghurs have been forcibly detained.**

was not aware of specific transactions and would be looking into it.

China's development of abusive technologies has not only been fuelled by partnerships with technology firms and researchers, but also investments from Western financial institutions. In March 2019, the Financial Times revealed that two major American pension funds, the California State Teachers' Retirement System and the New York State Teachers' Retirement System, owned tens of millions of US dollars' worth of shares in Hikvision.

Likewise, other major international investment firms such as Fidelity International, Aberdeen Standard Investments and Schroders, as of late 2019 held shares worth more than US\$800 million in Hikvision and Dahua. Hikvision's own website, furthermore, lists banks UBS and JP Morgan as among the company's top 10 shareholders. And a 2017 market research report by Deutsche Bank explicitly listed the likelihood of Dahua Technology securing a ten-year government-backed tender – for 'a safe city project, which includes infrastructure as well as a public video sharing platform' – as the reason for its 'buy' rating.

While these firms may pay lip service to human rights due diligence in selecting their investment portfolios, many major investment firms remain, at the time of writing, shareholders in these companies, despite their being sanctioned by the US government – and in the face of rampant evidence of their technologies being used to carry out gross human rights violations.

## What is to be done

China's current development and use of AI and related surveillance technologies, especially in Xinjiang, not to mention the sale of these technologies or exchange of knowledge that may contribute to abuses elsewhere, violates existing and evolving international norms and standards on technology and human rights. Foreign enterprises, investment firms and research institutions in the UK, US and elsewhere cannot continue to proclaim their ignorance of the abusive applications of these technologies in view of the mounting evidence of widespread targeting and persecution of minority populations in China, particularly Xinjiang. Those who continue to engage in business or to invest in these companies must accept their culpability in the human rights violations being carried out there at this very moment: not only the monitoring and surveillance of whole cities and their Uyghur residents, but the even worse abuses being carried out unseen in the darkness of China's internment camps.

# India: The dissemination of misinformation on WhatsApp is driving vigilante violence against minorities

Shakuntala Banaji and Ram Bhat

Over the last few years, hundreds of people have been killed or injured by vigilante mobs across India. The rapid spread of misinformation (ranging from unintentional deception to deliberate disinformation) via the use of digital media applications such as WhatsApp has played a crucial role in enabling the rise of this violence, including lynchings.

While these incidents have included random strangers being beaten to death on the suspicion that they are potential child-kidnappers or organ-snatchers, discriminated groups such as Muslims and Dalits have been especially targeted, particularly in relation to allegations of cow slaughter – an issue that has increasingly been used as a catalyst for attacks by right-wing Hindu nationalists.

## Typology of misinformation

In order to better understand how WhatsApp and other social media messaging platforms are implicated in discriminatory mob violence,

using funding from WhatsApp we conducted an independent qualitative study in four large states of India between November 2018 and August 2019. As part of this study, we interacted with nearly 300 WhatsApp users from a wide range of backgrounds: men and women aged between 18 and 50, in both rural and urban areas, from upper and lower castes, and including Hindus, Muslims and Adivasis with a variety of political beliefs and occupations. We also studied more than 1,000 WhatsApp anonymized messages that were typically shared in WhatsApp groups.



A man holds a placard that reads 'stop attacking minorities' during a protest against mob lynching. Kolkata, India.

Credit: SOPA Images Limited / Alamy

Based on this review, we developed a typology of violence-fuelling misinformation that is most commonly received and shared by Indian WhatsApp users. The categories include:

- **Overwhelming content:** still and moving images of incidents from across the world, shared without context, each displaying something spectacular – an execution, an accident, a child getting beaten up, a natural disaster, fires and so on – to engage users by imparting a sense of shock. This content also serves the function of establishing a WhatsApp group as a significant channel of information unavailable in mainstream broadcast and print media, where graphic violence is generally not shown.
- **Nationalism and ethno-religious bigotry:** these messages are conspiratorial, drawing on a wide number of established stereotypes and prejudices against minority populations. They often build on negative propaganda featured in mainstream outlets, such as anxieties around population growth among poor and minority populations, conspiracy theories about the forced conversion of disenfranchised Hindus to Christianity, smear campaigns aimed at opposition politicians, and other narratives aiming to incite hostility towards particular groups or individuals.
- **Miscellaneous:** this includes festival-related greetings, videos of animals, television clips from talent shows and news programmes, public events, humorous clips from India and across the world (including content imported from other platforms such as YouTube and TikTok) and other material. Though seemingly innocuous, these snippets function to sustain the impression of a constant 'flow' of information and to build the profile, brand and

legitimacy of users who pass on other kinds of misinformation.

- **Gendered content:** as in many other areas, WhatsApp usage in India continues to be highly gendered. Women across age, religion, class and caste do not have unrestricted access to mobile phones, and their use is often closely monitored and controlled by their husbands, brothers, fathers or other male relatives. Young women who do use social media frequently experience messages threatening them with devastating physical and symbolic violence, including rape, harassment and the public sharing of personal information to intimidate them into silence. Frequently, incidents of online harassment result in a vicious circle, where families and communities blame the women for attracting these attacks.

A recurrent trope that has recently emerged is reports – usually a short video or an image with a voiceover – of child-kidnapping ‘gangs’ or an individual kidnapper allegedly doing the rounds in or around a community. Since 2017, when the frequency of these attacks dramatically increased, dozens of people have been lynched on the suspicion that they are child-kidnappers. Usually, in South Indian states the ‘stranger’ is described as being from North India and vice versa. More recently, the same misinformation is being shared with the putative strangers now being described as Rohingya Muslim refugees, thus playing into the government’s strategic generation of fear and loathing of outsiders in the wake of its National Register of Citizens initiative.

## User motivations

A significant section of WhatsApp users expressed fatigue with the volume of WhatsApp messages received in a single day. They were members of several groups formed on the basis of family, friendship, neighbourhood, caste, religion, political party and occupation. Users were part of most of these networks offline and active online participation cemented their credibility and membership in the offline world. It mattered to users that they be seen as active, knowing WhatsApp participants in specific groups.

Some users – particularly those over 25 – categorized messages on the basis of sender-credibility. Younger users, on the other hand, were more sceptical about the accuracy of the messages because of enhanced functional media literacy. If a video message was edited heavily, for instance, they were able to spot the places where the video had been altered and were suspicious of its authenticity – although this did not always lead them to reject the message or to report it. Most users suspended their scepticism during politically charged moments such as cross-border conflict and general elections, or regarding news of child-kidnappings. During such occasions, users reported that they forwarded messages out of an assumed sense of civic duty, and out of loyalty to family or communal ties that have historic roots. That these ties were often caste-based, partisan and led to the spread of misinformation was less important to them than displaying adequate nationalist or communal fervour at a fraught moment. Another finding was that, contrary to popular belief, users with little



The cover of Indian magazine 'India Today' with the headline 'The Weaponisation of Whatsapp'.

*Credit: Nick Kaiser/dpa/Alamy*

or no digital and media literacy played a minimal role in the spread of misinformation. A very small number would receive and forward misinformation uncritically. However, it was primarily upper-caste privileged men, and some women connected to them, with high levels of functional media literacy and class capital, who were involved both in producing this content and creating the networks to disseminate it to others.

### **Inadequate state response**

The increasing use of media platforms such as WhatsApp to harass citizens who dissent from the ruling party agenda and its nationalistic ideology has been enabled by impunity. Not only have the police and security forces failed to prevent the spread of misinformation but there is also evidence that a significant portion

may themselves sympathize with the prejudices the messages express. In one 2019 survey of 12,000 police personnel conducted across 21 Indian states, a third of respondents felt that mob violence by Hindu vigilante groups against Muslims in cases of alleged cow slaughter was 'natural', while more than half felt that complaints of gender-based violence were false.

Given the institutional failure of the state and law enforcement agencies to control violence related to misinformation, the central government has proposed that platforms such as WhatsApp allow users to become traceable, in order to identify users who share misinformation so action be taken against them. In effect, the government has proposed that encryption be removed from WhatsApp in the name of law and order: the case is currently being heard by the Supreme Court of India. However, given that far-right and nationalist groups continue to disseminate misinformation with impunity on public platforms such as Facebook, ending encryption is unlikely in itself to resolve the problem of online incitement.

Furthermore, human rights activists have expressed concern that the government could exploit such a move to monitor and repress political opponents and dissenters, rather than curb hate speech against minorities and other marginalized groups. For instance, the district-level administration in different parts of the country has arbitrarily placed restrictions on WhatsApp usage during sensitive periods. For example, in the districts of Kargil and Leh, internet access was restored in December 2019

after a five-month internet shutdown in the erstwhile state of Jammu and Kashmir. With the restoration of internet services, the district administration has demanded that all administrators of WhatsApp groups are required to register themselves with the district administration, with strict orders that they will be held responsible for any content circulated on these WhatsApp groups.

This has taken place against the backdrop of the Bharatiya Janata Party (BJP) government's growing authoritarianism, particularly towards Muslims and democratic dissenters. The erstwhile state of Jammu and Kashmir and the state of Uttar Pradesh, both states with large Muslim populations, have faced large-scale violence and the imposition of curfews, internet shutdowns and police aggression against protesters. In late 2019, the central government passed the Citizenship Amendment Act (which came into operation on 10 January 2020), providing citizenship to persecuted minorities of different religions from neighbouring countries except Muslims. In addition, the central government has also allocated budgets for undertaking the National Population Registry that seeks to identify 'valid' citizens on the basis of identity documents. There seems to be little doubt that the Citizenship Amendment Act, in conjunction with the National Population Register and National Register of Citizens, could be used to label vulnerable Muslims as foreigners or illegal 'infiltrators'. Facing popular protest against the Citizenship Amendment Act throughout the country, the BJP and the larger family of Hindutva organizations have resorted

to using WhatsApp to incite anti-Muslim hatred among its supporters.

Even as the central government has weaponized its administrative and military powers against Muslims, especially in Kashmir, the same officials have claimed that encryption prevents them from acting against those spreading misinformation. It is difficult to believe this argument is made in good faith, given the lamentable track record of the government and security agencies to tackle hate speech on public social media platforms such as Facebook, Twitter, Instagram and YouTube. In spite of repeated complaints by Dalit activists, feminists, journalists, human rights activists, students, academics and many others, no action has been taken by those who perpetrate death threats, sexual harassment and other forms of abuse. Given that both technology companies and law enforcement agencies have failed to act against hate speech on open platforms, it is doubtful that the removal of encryption will result in any action.

### Towards real change

Vigilante violence is linked to specific typologies of misinformation produced, shared by and targeted against specific social groups, along the lines of caste, indigeneity, class, religion, gender, sexuality, language and ethnicity. This violent social structure should be taken as the broad context in which applications such as WhatsApp are used. WhatsApp usage further intensifies this violence in specific mediated ways. Motivations of users are important since users have diverse ways to



A smartphone shows no network available under the Kashmir communications blackout.

*Credit: Saqib Majeed/ZUMA Press*

justify misinformation that range from suspension of disbelief to civic duty and nationalism. Such ideological articulations are or should be contested in order to transform the conditions under which social interactions are imagined and acted upon.

Unfortunately, mainstream thinking on curbing misinformation has been restricted to purely technical solutions, such as possibly removing encryption and investment in functional media literacy. However, misinformation and subsequent vigilante violence need to be curbed through a critical

understanding of broader socio-political contexts. Interventions such as promoting a stronger media literacy around the politics of representation and power, as well as cross-stakeholder cooperation to act on hate speech, would be important steps towards real change.

*More details of the research project and its findings are available in S. Banaji and R. Bhat, WhatsApp Vigilantes: An Exploration of Citizen Reception and Circulation of WhatsApp Misinformation Linked to Mob Violence in India, LSE, 2019.*



## Nepal: For persons with disabilities from minority and indigenous communities, the greatest barrier to accessing assistive technologies is discrimination

Pratima Gurung



An indigenous woman with a disability living near forest areas in Nepal. She has been denied basic rights provided by the government because her family is not familiar with government procedures and lacks access to information.

*Courtesy of Pratima Gurung*

Though the estimated 370 million indigenous people worldwide are extraordinarily diverse, spanning some 5,000 languages and cultural groups, they have one unfortunate commonality – a long history of injustice. The difficulties they face range from limited political participation and economic inequality to lack of infrastructure and inappropriate education.

For indigenous persons with disabilities, however, the challenges are even more acute: in their case, the risks of physical inaccessibility, social stigma and related issues such as discrimination in employment opportunities are heightened by racism. Furthermore, indigenous women with disabilities may be confronted with added barriers around gender, including not only the threat of violence and abuse from non-indigenous groups but also restrictive roles and expectations within their own communities.

Unsurprisingly, despite the many potential benefits that technologies can bring, the relationship between indigenous persons with disabilities and technologies has been complicated by power imbalances, stereotypes and limited political will. 'Technology' is a broad term and assistive technologies are no exception, encompassing something as simple as a white cane to the latest computer software. It can be as fundamental as the ability to access comprehensible information in one's own language. Yet in all these cases,

even when the technology in question is low-cost or guaranteed as a basic human right, in practice it may be unaffordable or inaccessible for many indigenous persons with disabilities.

At an international level, the importance of information and communications technologies (ICTs) for indigenous peoples was only officially recognized in 2003 in the Geneva Declaration of the Global Forum of Indigenous Peoples and the Information Society. The Global Forum highlighted that ICTs should be used to support and encourage cultural diversity and to preserve and promote the languages, distinct identities and traditional knowledge of indigenous peoples, nations and tribes, and in a manner to determine the best advances towards these goals. But to this day, the use of ICTs remains low in many indigenous communities and they are not generally viewed as active users. For indigenous persons with disabilities, the problems of paternalism and negative perceptions about their capacity to engage with advanced technologies have been reinforced by similar assumptions with regards to disability.

Access to appropriate technologies for persons with disabilities, indigenous peoples and other marginalized groups can deliver wide ranging benefits, fostering equality, non-discrimination and participation in society. With new generations of screen reading software for those who are blind or visually impaired, improved mobility devices such as wheelchairs for physically disabled users and other assistive technologies, the potential to transform the lives of the millions of indigenous persons with disabilities in developing countries is immense. Yet access to technology continues to be characterized by a growing gap between those who are technology-rich and those who are technology-poor, in the process deepening the existing disparities between dominant groups and those belonging to marginalized groups, including indigenous peoples and persons with disabilities.

### Barriers for accessing technology

Nepal is no exception to the troubling pattern of exclusion that shapes indigenous and disabled access to technologies at a global level. There are many factors that contribute to the high levels of disability among indigenous peoples and other marginalized communities, such as Dalits, living in rural areas of Nepal. Besides facing an increased exposure to risks such as environmental degradation, climate change impacts, natural disasters, conflict, violence, dangerous working conditions and accidents including in foreign employment, they also suffer poverty, lower standards of health, inadequate nutrition and a lack of suitable rehabilitation services, meaning that in the event of an

accident or debilitating illness they are less likely to recover from its effects.

This was especially evident in the wake of the 2015 earthquake that devastated significant areas of Nepal, with reports of indigenous peoples and Dalits being sidelined from emergency relief. This reflected a broader context of exclusion from public life: a survey undertaken for the United Nations Development Programme in its wake found that 81 per cent of indigenous persons with disabilities and 61.6 per cent of Dalit persons with disabilities stated that they had 'inadequate or poor' access to public facilities, compared to 42.2 per cent among persons with disabilities belonging to other ethnic or caste groups.

In Nepal, perhaps the greatest obstacle to securing the assistive technologies that could change their lives is deep-seated prejudice. 'Many persons with disabilities from indigenous communities, religious groups and

A survey undertaken for the United Nations Development Programme found that **81% of indigenous persons with disabilities** and **61.6% of Dalit persons with disabilities** stated that they had 'inadequate or poor' access to public facilities, compared to **42.2%** among persons with disabilities belonging to other ethnic or caste groups.



minorities experience multiple layers of discrimination based on their identities and social categories,' says Jamuna Tamang of the National Indigenous Disabled Women Association Nepal (NIDWAN). These occur at every level, says Tamang, and 'are direct barriers that impact the daily lives and the social, economic and physical aspects of indigenous peoples with disabilities.' Broadly summarized by Tamang, these include:

- **Lack of access to information:** 'Even if there are provisions for receiving assistive devices for persons with disabilities, those may not reach indigenous peoples, as the information circulates in urban settings, within networks of a few Organizations of Persons with Disabilities (OPDs) to which most marginalized groups may not have access.'
- **Administrative hurdles:** 'The procedural requirements may represent more barriers since the documentations and forms may not be provided in accessible formats and appropriate languages. Forms, recommendations, information on rights, procedures for applications, follow up, time frames and legal formalities remain challenges for individuals from these groups as most are not familiarized with institutional and legal structures.'
- **Physical distance:** 'Geographical remoteness is also an obstacle for indigenous peoples and persons with disabilities as travelling to a headquarters or city and going through procedures can take several days and is costly.'

- **Unaffordability:** 'These groups may not be able to afford technologies because of the high costs, maintenance requirements and lack of training and literacy. The absence of initiatives to educate people in this regard can be compounded by the limited information technology infrastructure available for indigenous peoples in rural areas.'

- **Culturally inappropriate technologies:** 'If people manage to have access to the technology, they might still not be able to use it properly due to the lack of a disability, social and cultural friendly environment. For example, the wheelchair provided might not be the right size or according to the needs of the disability, or environment and cultural friendly. During our home visits, we have noticed wheelchairs used for keeping clothes and pots and crutches used for chasing chickens in the fields.'

Indigenous peoples and religious or ethnic minorities such as Dalits may also encounter cultural, attitudinal and structural barriers in accessing assistive devices or disability services. After the 2015 earthquake, one of NIDWAN's members went to ask for assistive devices for her husband. She was told to write an application and submit it to the local government office near her community. When she went to the office, she was told to wear a formal dress and speak properly while demanding those services from officials. Belonging to an indigenous community she was wearing a lungi, a form of community attire, and was speaking a mix of indigenous Tamang and some Nepali, which was

understood. But though the officers could understand her request, she was told to come in proper dress, speak correctly and denied the services she needed. After that, she no longer felt like going to the office again to request any further assistance.

Unfortunately, her story is far from an isolated case. Indifference and poor treatment of indigenous and minority communities in Nepal are commonplace, though rarely discussed openly. The power dynamics become ubiquitous and this applies at all levels, even in OPDs, with even persons with disabilities from majority groups denying the issues faced by persons with disabilities from indigenous peoples or minorities. Furthermore, what aids are available are often not suited to the environment in which indigenous communities live. Disability equipment often has an extremely low durability and is difficult to repair locally, so most people living in rural areas use assistive devices that are locally made. Very few homes are accessible for persons with disabilities, which leaves them completely dependent on family members. This increases their social, political and economic marginalization and limits their access to necessary and appropriate support and services.

According to Yub Raj Lama, a visually impaired member of NIDWAN Youth Group, language availability is another significant factor. Having been raised in the city, he himself understands Nepali, the official language of the country, and therefore is able to access all of the facilities available. These assistive technologies are only available in mainstream or majority languages, however: even if these

services are provided to indigenous communities, they are unable to use them since most, besides being unfamiliar with the technology, do not speak mainstream Nepali. Like Yub Raj, many visually impaired persons belonging to indigenous communities in Nepal are now looking for ways to exploit these technologies, but as they remain unavailable in their own languages there is a danger that they will become yet another area of their lives where they are forced to assimilate to the cultural and linguistic context of the majority population.

### Opportunities and ways forward

There is currently a dearth of information, a lack of documentation and limited debate on the role of ICTs to ensure the full inclusion of persons with disabilities belonging to indigenous peoples or minorities. Issues of gender have provided a conceptual framework, and the subject of double discrimination has been recognized in the disability movement and discourse. However, a fully multiple and intersectional lens related to caste, ethnicity, geography and class has still to be discussed or applied to different aspects of health, employment, technology and other services. Most available research studies and reports do not reflect intersectional perspectives. People who readily have access to ICTs are those who routinely frame any understanding of their role in society, meaning they determine how it is ultimately perceived.

In its 2018 Concluding Observations on Nepal, the UN Committee on the Rights of Persons with Disabilities

(CRPD) urged that the government 'strengthen measures, including public procurement, to grant access for all persons with disabilities... to information and communications technologies, and to low-cost software and assistive devices.' The CRPD also emphasized the importance of inclusion to engage in education and livelihood activities, for instance by granting access to affordable mobility aids and assistive devices, technologies and services necessary for the unrestricted personal mobility of all persons with disabilities, including those living in rural areas, and belonging to indigenous peoples and minorities. Usefully, the CRPD directly addressed issues pertaining to situations of risk and humanitarian emergencies, where the government should adopt 'an accessible communication strategy (including hotlines, a text message warning application and general manuals in sign language and Braille) and a comprehensive emergency strategy and protocols for situations of disaster and risk.' Throughout, the CRPD emphasized the importance of consultation with persons with disabilities through their representative organizations.

These Concluding Observations have opened up avenues and opportunities for both stakeholders to demand and duty bearers to ensure the comprehensive provision of suitable ICTs for all persons with disabilities, including those belonging to minority and indigenous communities.

## Conclusion

Reframing the narratives of technology to make it cost effective, geographically inclusive and culturally accessible, as well as increasing literacy and knowledge of technologies at a wider level, is crucial if the large numbers of currently underserved persons with disabilities belonging to indigenous peoples and minorities are to be reached. This includes ensuring that technological information can be explained in terms and language that local communities can understand to enable them to introduce it into their daily lives. An intersectional understanding of the systemic and structural barriers faced by indigenous peoples, persons with disabilities and other marginalized groups is necessary to deliver truly inclusive health care, employment and other services. With this in mind, technology needs to be considered in a holistic and culturally appropriate manner to make sure that no one truly is left behind.

# Pacific: For indigenous communities, new seabed mining technologies could begin ‘the biggest land grab in history’

Joshua Cooper

Indigenous peoples in the Pacific have repeatedly mobilized to protect their ocean, rooted in their cosmological relationship with the liquid continent. Now there is a new challenge for those aiming to preserve the Pacific Ocean, with a looming deadline that will determine the fate of the largest and most mysterious habitat on Earth – the deep seabed.

The people and the Pacific are inextricably interconnected to one another: it is a symbiotic relationship of sacredness and respect. What happens to the land and in this case the sea directly impacts the inhabitants of the Pacific Islands. Deep seabed mining will result in social destruction, economic disruption and spiritual devastation. As the Clan Chief of Duke of York Islands in Papua New Guinea, has put it: ‘When they start mining the seabed they’ll start mining part of me.’

## On the frontline of a new ‘gold rush’

Local communities and cultural practitioners whose livelihoods and existence on Earth depend on their relationship to the Pacific have organized against the latest wave of exploitation of their sacred homelands in Oceania. They are confronted, however, by powerful corporate interests. Around 30 contractors have already acquired exploration licences from the UN International Seabed



Using a *larung*, a shark caller rattles coconut shells in water to improvise an irritated school of tuna, a sound that sharks notice from many kilometers away. Shark Calling is an ancient fishing tradition deeply rooted in the ancestral wisdom of the Kontu inhabitants. Kontu, New Ireland, Papua New Guinea. Credit: Claudio SieberCredit:

Authority (ISA) and are eagerly awaiting the decision on a new mining code at the 26th session of the ISA in July 2020. The session has now been postponed until later in the year, due to the coronavirus pandemic.

In most of the contractors' sights are the large deposits of rare earths and minerals on the seabed of the Clarion-Clipperton Zone, an immense and largely uncharted area in the North Pacific Ocean teeming with an array of marine life, including many unknown species. It's already being dubbed the new global gold rush, though the valuable metals here are nickel, cobalt, manganese and copper – all materials that play a central

role in the production of batteries, electronics and other technologies.

Yet their planned extraction collides directly with the cultural belief systems of the indigenous population, who believe the minerals mined from the seabed are constituted by the spirits originating from the Pacific Ocean. Once again, a pristine indigenous sacred space is being plundered for profit, with little or no regard for the human rights of the inhabitants and the wider Pacific.

According to Dr Sylvia A. Earle, an oceanographer and marine biologist, 'The lease areas are enormous – Clarion-Clipperton is the size of the



According to Dr Sylvia A. Earle, an oceanographer and marine biologist, 'The lease areas are enormous – Clarion-Clipperton is the size of the United States.' She describes the proposed leasing of the area for mining as 'the biggest land grab in history'.

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### **A living universe beneath the waves**

Commercial extraction by the contractors has so far been put on hold pending agreement on the mining code. When the ISA votes on whether to grant commercial-scale exploitation licences to these companies, what will their decision be based on? Not the views of the Pacific peoples themselves, at least not directly, as this body still lacks indigenous representation despite calls to include them in decision-making. Will they factor in the profound spiritual value of this unique seascape to the communities who depend on it? Will they recognize that this area remains one of the last great enigmas of the natural world, an area that is still less well known and understood than the moon? Will they acknowledge that at present it is impossible to predict the damage that will be wrought on the ecosystem by these largely untested, highly invasive mining technologies?

While the mining industry regards the Clarion-Clipperton Zone as a potential windfall of commodities waiting to be extracted, indigenous peoples view it as a living system.

Its 'nodules' – the potato-sized lumps of rock lying on the seabed that the mining companies seek to uproot for the minerals and metals they contain – are themselves vested with meaning. Scientists and indigenous peoples both understand that the deep seabed is alive. In the words of Sylvia Earle, 'These living rocks are not dead stones – they are living systems.'

### **A way of life under threat**

Solwara 1 was operated by Nautilus Minerals, a Canadian corporation, in Papua New Guinea and was – until the project's high-profile collapse in late 2019 – the world's first commercial deep sea mine site. It demonstrates the impact that mining has already had, even at the exploration stage, for indigenous peoples in the islands of the Pacific.

New Ireland's West Coast communities have been home to shark callers for centuries. Armed only with a *larung*, a rattle fashioned out of coconut shells and bamboo, the shark callers connect with various breeds of shark who then come to their boat before being caught by hand. This ancient fishing tradition, besides providing an essential source of protein, is deeply rooted in the ancestral wisdom of the Kontu inhabitants and their close connection to the sea.

In recent years, however, while exploration by Nautilus Minerals has been under way, the sharks have not returned. The noise from ships and large equipment, as well as contamination of the waters where the callers communicate with the sharks, now threatens this long-established practice. For local inhabitants, whose livelihoods and spiritual beliefs are intertwined with shark-calling culture, the effects have been devastating.

Many other indigenous peoples in the region face the threat of corporate colonialism. From nuclear testing to climate change, the Pacific – despite the deep-seated traditions of responsible stewardship of its communities towards the natural resources that sustain them – has been ground zero in the global environmental collapse brought on by excessive consumerism, unregulated growth and profiteering. Yet, though the catastrophe now playing out in many of the islands is plain to see, foreign companies and governments still plan to aggressively mine the seabed for anything they can find. This may or may not make their investors richer, but the world will undoubtedly be poorer as a result.

## Conclusion

Is it easier to bulldoze than to build a culture of respect for nature? What has happened in Papua New Guinea is scheduled for major parts of the Pacific Ocean, with large machines to be lowered to the seabed floor to excavate the rare minerals and metals there. Since so much of its extraordinary variety of marine life is still unrecorded – scientists working there note that many new species are found on every

single dive – we may never know how much we lose in the process: the countless life forms we never even discovered before we destroyed them.

Looking ahead, the challenges now facing the Pacific Ocean are as much to do with indigenous rights as environmental protection. It is evident that environmental impact assessments are essential before any extraction can be allowed, but these must also take place in line with the recognized human rights standards of free, prior and informed consent as well as the precautionary principle. This should also include placing the views and knowledge of indigenous peoples at the heart of this process through meaningful, equitable representation in decision-making, particularly in relation to the new global treaties now being forged at the United Nations General Assembly (UNGA), as well as specific decisions at the ISA on deep sea mineral extraction.

Aside from the negotiations at the International Seabed Authority, there is another significant process currently on the global docket regarding protection of our oceans. Since 2018, an Intergovernmental Conference convened by the UNGA has been negotiating a binding instrument to govern Marine Biodiversity of Areas Beyond National Jurisdiction (BBNJ). The Intergovernmental Conference had been intending to meet in March–April 2020 for a fourth and final round of negotiations on the 350-page text covering the seas beyond the national jurisdiction of coastal states; however, the session was postponed on account of Covid-19. Governments are hoping that the delay may give them time to

agree on a number of disputed topics, including benefit-sharing between the private sector and coastal states. Most crucially though, it is vital that the principles of the UN Declaration on the Rights of Indigenous Peoples inform this global dialogue, with a long-term moratorium on seabed mining in the meantime to allow for careful and respectful research.

The deep seabed is an international territory that, like Antarctica and the Arctic, should be preserved for future generations with no military or commercial activities allowed. It is also a common heritage of humanity. Yet, much of what is being proposed is couched in the language of development and technological innovation. While extractive industries have long desired to excise these natural resources from the seabed, the refinement of new and more powerful machinery has now given them the means to do so.

But there are other forms of technology besides the extractive equipment of the mining corporations, including the unique knowledge systems of the Pacific, that offer an alternative vision of progress rooted in sustainable environmental management, conscious consumption and circular economy approaches. Deep seabed mining, on the other hand, would steer global civil society in the wrong direction, undermining the UN's Sustainable Development Goal (SDG) 12 (to ensure sustainable consumption and production patterns) and SDG 14 (to conserve our oceans while caring for life below water).

'We must not take more from the ocean but find the balance,' says Silvia Earle. 'Let's respect the ocean for what it gives us – life.' Though she is merely echoing what most indigenous Pacific islanders would tell you, this simple but important warning continues to be ignored.

# Pakistan: ‘The virus has turned every facet of life upside down’ – privacy and data protection concerns in the wake of Covid-19

Haroon Baloch

The world is faced with an unprecedented challenge and many argue that every resource we have should be deployed as fast and as fully as possible in order to save lives. Equally, governments are urged to minimize the economic disruption which may cost lives due to poverty and hunger long after the pandemic itself is over.

But members of religious minority communities fear that the apparent ‘carte blanche’ to use all data and every technology in this context may lead to serious problems both now and long after the pandemic is over.

Covid-19 is turning out to be an opportunity for many governments, telecommunications companies and social media groups to collect copious amounts of personal data, citing the urgent need to fight the pandemic. Both state and non-state actors have joined hands to work collaboratively and benefit from personal data as much as they can.

In Pakistan, the government has been using Cell Site Location Information (CSLI) and Call Details Record (CDR) technologies to access the personal data of citizens from their cell phones and send out Covid-19 messages. An application has also been developed and launched, enabled through geotagging services, to send alerts to citizens who are entering or resident in vicinities with known cases of Covid-19.

Just weeks before, social media companies were meeting with the authorities to protest a sweeping new law aiming to control their activities



A Sikh devotee waits to take part in a religious ceremony during the Baisakhi festival at Panja Sahib shrine in Hassan Abdal, Pakistan. Credit: REUTERS/Saiyna Bashir

in Pakistan. The new regulations, Citizen Protection (Against Online Harm) Rules 2020, give authorities access to their data and fine companies that do not comply. It would also create a new post, the national coordinator, who would have the power to require social media companies to take down or block content within 24 hours. We understood that companies were threatening to withdraw from Pakistan as they said that they could not function under the new legislation. I was so worried about the problematic new regulations approved by the Cabinet that I petitioned the Islamabad High

Court to disallow the measure: I felt that it would have such a severe impact on the right to privacy and freedom of speech for all citizens of Pakistan, but in particular for the most vulnerable groups, including those of minority faiths, minority sects of Islam and those of no faith. That case is still pending.

Just a few weeks later, the virus had turned every facet of life upside down. Telecommunications and social media companies have worked hand-in-hand with governments in this challenging time to convert the pandemic into opportunities to further

target the public with advertising. Meanwhile governments, aside from Covid-19, have also been interested in collecting citizens' data to use it for their national security-related interests.

The entire stream of massive data collection by governments with the help of telecommunications companies and social media giants is a shady exercise – and entails lots of privacy related implications. Aside from the fact that most of the data is being collected without seeking prior informed consent, there are serious concerns about the integrity of data controllers and data processors, data retention, security protocols employed by the data controller and processor, oversight and remedial mechanisms.

From the perspective of religious minority communities in Pakistan, the idea that all their data is to be made available to the state is terrifying. Pakistan has openly discriminatory laws concerning blasphemy and directly discriminates in advertising for low paid workers to be 'non-Muslim'. Restrictions on the operations of NGOs are already very tight. Multiple serious and violent attacks on minority religious communities are common in

Pakistan, and minority communities do not believe that the state's data processing measures will ensure that their data cannot reach those who may have supported such attacks in the past. Already in a vulnerable position, any expansion of the government's powers to collect and use personal data in the future could mean that these communities will feel the need to retreat further into isolation, communicating only amongst their own members and no longer able to feel part of Pakistan's society as a whole.

So, whilst the need to use the tools we have to save lives may be correct, this should be done with safeguards and limits, particularly in a context such as Pakistan where many communities already face the threat of being targeted online. If we do not consider the long-term implications of the decisions we make now around privacy, security and technology, it may be much harder to roll back these intrusions once the crisis is over.

*This case study is adapted from a blog originally published on MRG's website in May 2020, Religious minorities, privacy and data protection in the fight against Covid-19. ■*



**Europe**



Despite its relative affluence and robust regional human rights mechanisms, Europe still has significant inequalities that are especially evident among its minorities as well as its population of asylum seekers, migrants and refugees. In particular, the European Union (EU) has been widely criticized for its apparent disregard for human rights standards in its efforts to secure its borders, including the use of dubious experimental technologies such as lie detector tests to 'simplify' the complex process of migration management.

Nevertheless, the region has been leading the way in terms of protecting the human rights of technology users as well as the wider public. The European Commission's 2016 Code of Conduct on illegal online hate speech has involved key technology companies agreeing to develop internal procedures and guidelines for removing hate content from their platforms. The EU also took an important step in ensuring digital privacy rights with its General Data Protection Regulation (GDPR), which went into effect in 2018.

At the same time, across Europe, Roma minorities remain acutely marginalized in many countries, and without access to the necessary resources, training and support, technologies can serve as further barriers to securing their rights. In **Bulgaria**, where Roma continue to suffer significant disparities compared to the rest of the national population in a range of areas, including education, an innovative programme to provide young community members with training in information and communication technologies (ICTs) has demonstrated their value to excluded groups when they are given access. This has already been demonstrated by the increasing provision of sign language media and assistive technologies in countries such as **Belgium**, where deaf communities once largely excluded from the public sphere have over several decades been able to exploit new technologies – first television, then the internet – to achieve visibility and secure their rights.

Some communities are paying the costs of technological development, however. In **Norway**, Saami communities in the northern area of Repparfjord have been protesting against the planned development of a copper mine in their territory, agreed to by the government without their consent. In other contexts, there are different challenges. In **Italy**, in one of the poorest areas in the island of Sardinia, Sulcis-Iglesiente, members of the Sardu-speaking minority have few employment opportunities due to a protracted history of industrial decline. As a result, local residents are heavily reliant on the local armaments factory for their employment, a situation that has split views within the community.

# Belgium: Digitalization to unlock human rights to sign language – Yes, but at what cost?

Alexandre Bloxs



People use sign language at a demonstration for the International Day of Sign Language, Belgium 2018. Credit: FFSB Belgique

Both my parents and grandparents are deaf, as am I. Naturally, I have always used sign language at home since my birth. I have used French Belgian Sign Language (LSFB) as my primary language alongside French and, through all the years of intense practice and use, I definitely can say: *sign languages are proper languages!*

They offer the same linguistic properties and features as spoken languages, including phonetic, phonemic, syllabic, morphological, syntactic, discourse and pragmatic levels of organization. I emphasize the plural of 'languages' as, contrary to the common belief, sign language is not universal – far from it: there are more than 200 different sign languages around the globe.

Throughout history, and still in some regions of the world today, the use of sign languages by deaf people has been stigmatized and discriminated against. I recall my mother and grandmother, Nicoleta and Verginia respectively – both born and living in Romania during the Communist period – explaining to me how they would get their hands beaten with a stick by their teacher if they were caught signing during classes... in the Bucharest School for the Deaf. This story is just a small drop in the ocean of lived deaf experiences.

One of the official origins of discrimination against sign language

dates back to 1880 and the Second International Congress on Education for the Deaf that took place in Milan, Italy. This gathering brought together the world's most eminent specialists on deaf education – none of them deaf themselves – to exchange and discuss the best practices for the education of the deaf. At the event's conclusion, the congress adopted a resolution banning the use of sign language in deaf education in favour of an oral system called 'oralism'. The message was unequivocal: sign language hinders the cognitive and linguistic development of deaf people. To strive to be a normal human being, deaf people must learn to talk.

Consequently, for more than a century, deaf people could not use their natural language in public. At worst, its use was discriminated against, mocked and repressed; at best, it was ignored. Deaf people – commonly referred to as 'Deaf and dumb' – could not access quality education in their national sign languages, and therefore remained isolated from their society.

The seclusion and isolation of deaf communities from information and knowledge through the medium of sign language has been progressively attenuated with the emergence of new technologies. In Belgium, it all started in the 1980s when the news on TV was interpreted in LSF. For the first time, my deaf community could autonomously access information themselves, at the same time as their hearing counterparts.

Later on, in the 1990s, independent remote communication between deaf people finally happened, thanks to the appearance of the fax, the SMS and the Minitel, a videotex online service accessible through telephone lines that was the world's most successful online service prior to the worldwide web. They could contact each other without relying on a third party. Yet, it was reserved only for those who were literate, which represented a minority of the deaf community – a minority within the minority. The remaining deaf people, including my grandfather Joseph – a loyal member of his local deaf club in Liège, Belgium – used to say at the end of their weekly gathering: 'Let's meet here next Tuesday at eight. Don't be late!' Of course, they were late. Of course, my grandfather had to wait for his friends, sometimes for hours, because one friend's car broke down or another got sick. What other options did he have?

None.

Not until the birth of the internet. Webcam. Social media. Smartphones. Big Bang! The true catalyst for the connection of deaf communities, technologies unlocked the door of the

global network. We were finally free. Free to sign. Free to communicate in our preferred languages. Free to share our creativity, to share our opinions. Free to campaign online for recognition of our sign language. Technology is crucial to spread awareness of the existence of these languages and their importance for us. It is one of the keys to realizing our most fundamental human right, our right to sign.

The emergence of the digitalization era has also made it possible for deaf people to connect outside their communities in sign language through distance interpreting. Sign language interpreters can now work remotely through Video Remote Interpreting (VRI) and Video Relay Service (VRS). VRS is a telephone service where the spoken message is relayed in sign language and vice versa. VRI means that communication takes place via a video screen and at a distance. Remote interpreting can be used for different reasons and when the interpreter is not at the same location as the users: to chat with family or friends, to participate in a meeting, to order a pizza, or to access emergency response services if there has been an accident.

Accessing emergency response services in a timely manner is crucial and life-saving for everyone; deaf people are no exception. The European emergency phone number, 112, can be used by every European citizen in any area of the European Union (EU), at any time in emergency situations. Theoretically. Yet, accessible alternatives for persons with disabilities – meaning access by other means than voice, such as SMS, email, fax and text relay – is only supported by 22 of the 27

EU countries. When supported, some countries request additional fees to access those services. In addition, only eight of those countries offer the opportunity to contact emergency services in the national sign language through VRS, making our basic human right to access life-saving services a chimera in most parts of the EU. The current global Covid-19 pandemic actually highlights the dire predicament of deaf people and is a catalyst to enhancing our rights. In response to the pandemic, the Ukrainian government put in place a 24/7 remote interpreting service, affirming their global leadership in providing accessible emergency services to deaf people.

Furthermore, companies, universities and public institutions have seen new market opportunities to develop signing avatars as a replacement for human sign language interpreters. The signing avatar is a 3D technology with a virtual character using sign language; however, it often operates with word-for-word translation, which does not take into account the local context or the cultural norms of different sign languages. Sign languages are fully-fledged languages with their own complex structures that are distinct from spoken languages. While the technology has progressed and offers real potential for wider use of signing avatars, these computerized products do not surpass the natural quality and skills provided by human interpreters and translators. There is a good reason why TV broadcasts have not replaced presenters with automated voices and avatars, even though the actual state of the technology would allow it: this produces no human feelings or identification.

The same goes for deaf people. We just do not want to be considered as second-class citizens anymore.

Another perverse technological development concerning deaf people is the signing glove. This is an electronic device which attempts to convert the motions of a sign language into written or spoken words. Although the idea looks promising and exciting on paper, it does not help deaf communities.

The issue with signing gloves is dual. First, developers often do not consult deaf people through their representative organizations to check if they are properly representing the sign language. They gain applause and recognition for technologies based on an element of deaf culture, while deaf people themselves are legally and socially left behind, making it a case of cultural appropriation. Second, while the gloves are often presented as devices to improve accessibility for the deaf, it is the signers, not

Accessible alternatives for **persons with disabilities** – meaning access by other means than voice, such as SMS, email, fax and text relay – **is only supported by 22 of the 27 EU countries.**

A portrait of  
Alexandre Bloxs.



the hearing people, who must wear the gloves, carry the computers or modify their rate of signing: the idea being that deaf people must expend the effort to accommodate themselves to the standards of communication of the hearing person.

Given the long history of repression of the use of sign language, making its importance for rendering deaf communities invisible to the eyes of society, technologies have been shown to be an invaluable tool for making our rights, our culture and our pride visible. Thanks to Skype, my grandfather Joseph could chat with his friends when he was unable to attend the weekly gathering at the local deaf club for health reasons; thanks to Facebook, my mother Nicoleta could share her opinions in LSFB of the most

recent book she had read with the Belgian deaf community; thanks to the internet, I can use technology daily to participate in international meetings with sign language interpreters to support the global deaf community in our advocacy work for the realization of our human rights. The benefit of technology to us is inestimable.

Yet, there is still a long way ahead in making our society fully accessible to us, with dignity and requiring no extra cost. We urgently need a shift from the 1880 Milan Congress-based mentality to the full recognition of sign language as the fundamental basis for human rights of the deaf as we strive to be full citizens of our society. Once this goal is achieved, we can finally be equal with everyone.

# Bulgaria: Using information technologies to achieve positive change for Roma

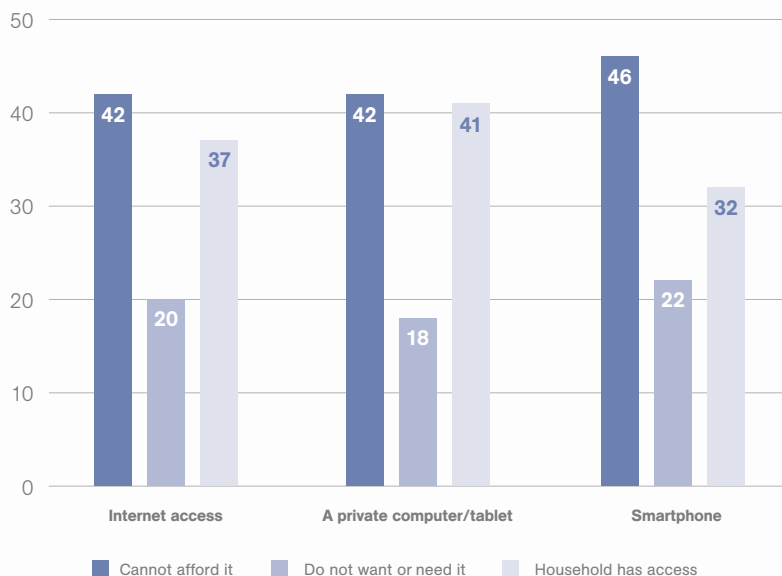
Alexey Pamporov

From the point of view of human rights and social inclusion, the development of information technologies (IT) in Bulgaria got off to a bad start when, in 1968, the sector was established by the Council of Ministers by means of a secret decree. By the 1980s, when it had expanded into a large industry, it was still playing a covert role in the Cold War competition between the East and the West, including developments in robotics and industrial espionage.

Much has changed since then, of course, particularly as technologies have become accessible to the Bulgarian population as a whole. Though Bulgaria has the lowest level of internet access of any country in the European Union (EU) – in 2018, less than three-quarters (72 per cent) of households had internet access – the situation has been improving rapidly, with more and more Bulgarians enjoying internet access every year. Nevertheless, an important factor that the official statistics do not take into consideration is the added barriers

that minorities such as Roma face: most of the national analyses focus on regional disparities, and age or lack of skills rather than ethnic inequalities specifically. However, an international survey conducted by the EU's Fundamental Rights Agency (FRA) in 2016 revealed that over 40 per cent of Roma people in Bulgaria cannot afford a private computer, smartphone or internet access – a startling figure that suggests, even as Bulgaria makes progress, that its Roma population is still being left behind.

**Proportion of Roma households (%) by access to internet, PC and smartphone (2016)**



Source:  
EU-MIDIS II  
(2016)

## Roma in Bulgaria

'Roma' is often used within the EU as an umbrella term for diverse groups including Gypsies, Travellers, Manouches, Ashkali, Sinti and Boyash, besides Roma (that is, Romani speakers). As in many other European states, the word *Tsigani* signifies this aggregate of ethnicities in Bulgaria – a term that is seen by many community members as pejorative. However, after the ratification of the Framework Programme for Equal Integration of Roma in Bulgarian society in 1999, the term *Roma* replaced it in all official documents.

There is a common language network of Romani dialects and patois that share a similar grammar and morphology, enabling Roma around the world to communicate with each other about


basic things like food and family life. At the same time, the main dialects differ significantly in their phonetics and vocabulary due to the influence of the surrounding populations. Since there is no standardization of the main dialects or of the Romani written system in the country, attempts to establish Romani language teaching as an extracurricular subject in the Bulgarian school system have so far achieved little success. Moreover, a significant proportion of the population defined as Roma speak Bulgarian, Turkish or Romanian as their mother tongue, rather than Romani: many members of these groups do not self-identify as Roma themselves. Based on the language spoken at home, religion and lifestyle, it is in fact possible to distinguish five main Roma groups in Bulgaria and several other subgroups whose self-identification is distinct from Roma.



The picture is complicated further by the absence of reliable data on the Roma population, a legacy of decades of discrimination that has resulted in their true numbers being consistently under-reported. Until recently, the most accurate figures on their size were not from the official censuses, where Roma were routinely under-counted, but in the 'confidential reports' drawn up by local police departments based on their surveillance of these communities, where numbers were significantly higher. Nevertheless, uncertainty around these numbers persists to this day: while the 2011 census found that 4.9 per cent of those who provided their ethnicity identified as Roma, alternative estimates suggest that the actual proportion may be as much as 10 per cent, double the official estimate.

When it comes to the situation of the different communities in terms of poverty, basic services and other measures of social exclusion, the limited information available confirms that they are still some of the most marginalized groups in Bulgaria. This is evident across a range of indicators, from teenage childbirth and early school drop-out to unemployment and inadequate housing. Living in segregated areas with limited access to water, sanitation or electricity, the impacts translate into poor health outcomes that are reflected in an estimated life expectancy ten years below that of non-Roma. This exclusion is in large part due to their official invisibility: as many Roma live in informal settlements, it is difficult even to register their permanent addresses as a precondition to obtaining identity documents or a citizen registration number for a newborn child.

A key element in addressing these inequalities is more accessible and inclusive education. Learning outcomes among Roma in Bulgaria are markedly lower than for their non-Roma peers. A recent survey conducted for the Trust for Social Achievement (TSA) reveals some positive trends in this regard: the proportion of people with only primary school or lower educational attainment fell from 15.3 per cent in 2011 to 5.6 per cent in 2019, while at the same time there was an increase in the share of Roma with completed university degrees (from 0.2 per cent to 1.2 per cent). Likewise, educational enrolment in the 7–15 age group rose to 92.8 per cent in 2019 from 82.8 per cent in 2011. Many problems persist, however, including high levels of school drop-out and an increase in school segregation: alarmingly, the share of Roma children enrolled in schools where Roma made up more than half of the student body increased from 31 per cent in 2011 to 47 per cent in 2019.



A recent survey conducted for the Trust for Social Achievement (TSA) reveals some positive trends: the proportion of **Roma** with only primary school or lower educational attainment fell from **15.3 per cent** in 2011 to **5.6 per cent** in 2019.

An education mediator and a member from the Roma community in Bulgaria carrying computer equipment.

*Credit: Amalipe*



## Code Success: a breakthrough in IT education

Unsurprisingly, given the broader backdrop of discrimination in Bulgaria and the barriers many face to accessing education, Roma are poorly represented in the country's IT sector. One organization that has sought to challenge the status quo is the Code Success Foundation, with an initiative to actively target and recruit Roma children, who until now have been largely overlooked by the industry. Importantly, the project recognized that many of those it aims to reach are already on the margins of the education system and at risk of dropping out from mainstream schooling.

As a result, it incorporated an extensive preparatory programme that includes preliminary development in 'soft' skills like Bulgarian, English and mathematics, as well as psychosocial support to help students navigate personal and family difficulties, before the IT training itself begins. Given that many of those enrolled may have been alienated by their own experiences at school, the teaching methodology combined a range of innovative approaches such

as gamification, flipped classrooms and road-mapping. Most importantly, it was committed to the principle of equality and seeks to bring together Roma and non-Roma students from different neighbourhoods. Overall, 32 students were enrolled and 16 children completed the full course, of whom 12 succeeded on the IT fundamentals test at the Software University (a partner on the programme) and three received scholarships to continue with an additional advanced module with C# or Java.

There were two diametrically opposed reactions from Roma communities. Some parents were hesitant and did not allow their children to be enrolled (after a successful initial screening) or made them drop out at a certain point. There was particular resistance towards the participation of Roma girls due to fears of them being subjected to violence or human trafficking. However, those children who were allowed to remain in the programme were positive and engaged, with attendance rates over 70 per cent. One of the children even graduated 'in secret' from his parents, since they were against his involvement but he was old enough to consent.

The project had an added value for all enrolled children, regardless of their final assessment within the Code Success Foundation: despite high drop-out rates among their communities, they all graduated and saw their scores in Bulgarian, English and mathematics improve as well. Five are now university students and all the rest have jobs. Nevertheless, the organizers of the programme are themselves acutely aware of the fact that initiatives such as theirs can only go so far. In the words of Vesselin Drobenov, the CEO behind this project, 'despite all the good news, the technologies are no panacea for education'. Alongside the advantages of the new technologies – increased effectiveness due to quicker access to information, new pedagogical approaches, prompt feedback and skills development relevant to today's work market – there are some shortcomings too, such as the reduction in face-to-face communication and personal interaction.

Perhaps the greatest challenge, however, is the unequal access to internet and IT technologies that continues to affect Roma in the country. In this context, while small initiatives such as this one can deliver extraordinary results, their impact will remain limited until there is a more fundamental transformation of Bulgarian society to ensure that the Roma population is recognized, respected and included as equal citizens.

### **'Old technology for a new beginning': Meeting the challenge of Covid-19**

The outbreak of the Covid-19 pandemic has brought many of these long-standing issues around discrimination, educational exclusion and limited access to new technologies to the fore. When, in

March 2020, the Bulgarian government established a national lockdown in response, the entire educational system was forced to transfer all its material online and adapt to distance learning using computers. Concerned about the educational inequalities, the Centre Amalipe, a Bulgarian Romani NGO, ran an express survey of around 200 schools which found that significant percentages of students in schools with a large proportion of vulnerable children lacked the necessary equipment and technical skills to access online education effectively. In response, it launched an appeal, 'Old technology for a new beginning', to collect donations of old PCs, laptops and tablets. At the same time, in neighbourhoods where there is no internet access, some educational mediators have delivered printed materials to the homes of affected children.

There is certainly a real danger that, alongside all its direct health risks, Covid-19 could deepen existing inequalities. At the same time, it has made the questions of poverty and lack of access to proper educational services for Roma children more visible than ever. We must hope that, building on the success of activities like the Code Success initiative, the authorities take this opportunity to overcome the long-standing barriers to schooling and technology Roma have faced to deliver equitable and inclusive education for all at this time of crisis.

*The author would like to express his gratitude to TSA for providing access to (at the time of writing) unpublished data. The opinions expressed here do not necessarily express the opinions of TSA and Global Metrix.*

# Italy: Mining, migration and munitions in Sardinia – a linguistic minority struggles with economic decline

Riccardo Labianco



Rusty mine carts on abandoned tracks, Ingortosu Arbus, Sardinia. *Credit: Marco Ledda*

With a little over 6,000 inhabitants, the town of Domusnovas is located in Sulcis-Iglesiente, a region in the south-west of the Italian island of Sardinia. One of the poorest areas of Italy, with extremely limited employment opportunities, the few jobs available in the area are very precious. As a result, local residents do everything in their power to protect their jobs and avoid having to migrate outside Sardinia in search of work elsewhere.

One of the most significant employers in Domusnovas is a bomb manufacturing plant: around 300 people work there. Some of the armaments produced in the factory have ended up in Saudi Arabia and the United Arab Emirates (UAE), where they have been used by these states in their military campaign in Yemen. In the summer of 2019, however, the Italian government decided to halt further transfers of bombs to these countries due to the large number of civilian casualties, widespread destruction and breaches of international law taking place in Yemen. An added justification, put forward by Luigi Di Maio, at the time deputy prime minister, was that this would help stem immigration from conflict-affected countries to Italy. In Domusnovas, however, the export ban had a much more immediate effect – suddenly, the jobs of hundreds of workers were under threat.

### **A history of marginalization and economic decline**

A linguistic minority, Sardinians can trace their presence on the island

back to the Neolithic period. While Italian is now widely used, Sardinia's native language, Sardu, has continued to develop along with the culture of this island's people. A 2007 survey found that over 68 per cent of those sampled claimed to speak Sardu and another 29 per cent to understand it, despite not using it frequently, suggesting that the language remains an important feature for the majority of Sardinians. Though classified by UNESCO as 'definitely endangered', a number of measures have been taken to ensure its survival. In addition to Italy's National Law No. 482 (1999) recognizing the safeguarding and promotion of minority languages, including Sardu, in 2018 the Region of Sardinia enacted Regional Law No. 22: this outlined a proactive policy for the preservation and promotion of the linguistic identity of the Sardinian people through the teaching of the language in schools and its use in public offices, among other provisions.

Nevertheless, to fully develop, a language's speakers need to be able to live and prosper in the area

where it is spoken. However, among other factors, migration to other areas of Italy, where Sardu is not spoken, has undermined the efforts to safeguard and revitalize the language. While the lack of economic opportunities has been a major driver of movement away from the island since the end of the nineteenth century, in part due to the marginalization of the region, the Italian government periodically sought to contain migrant flows by creating employment in the region in sectors like mining.

Sulcis-Iglesiente, like other parts of Sardinia, has hosted mines since antiquity. From the mid-nineteenth century, mining intensified and industrialized until it was widely seen as a critical part of the region's economy. Over time, however, the extraction of zinc, lead, coal and other resources progressively became more expensive and less profitable for various reasons, including the low quality of the minerals in the area. Demand therefore decreased and with it the number of jobs in mining, falling from around 9,000 workers in 1951 to less than 2,000 by 1979. The vanishing job prospects in Sulcis-Iglesiente forced many residents to look for jobs in the so-called *continente* (the continent) – a term used by Sardinians to signify the rest of Italy, as well as abroad.

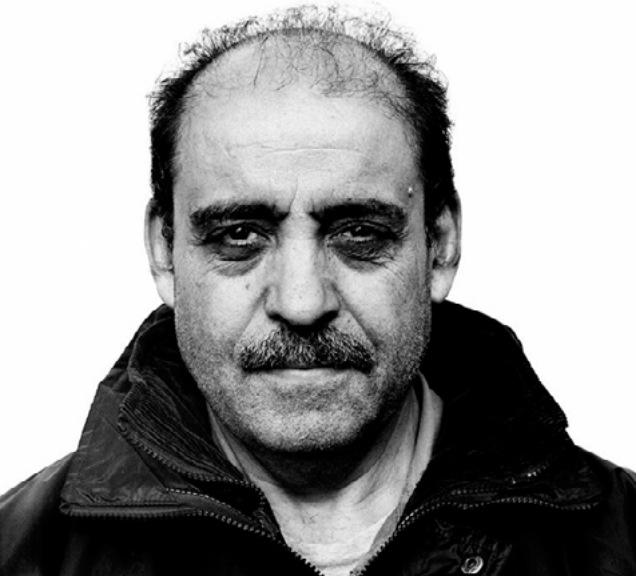
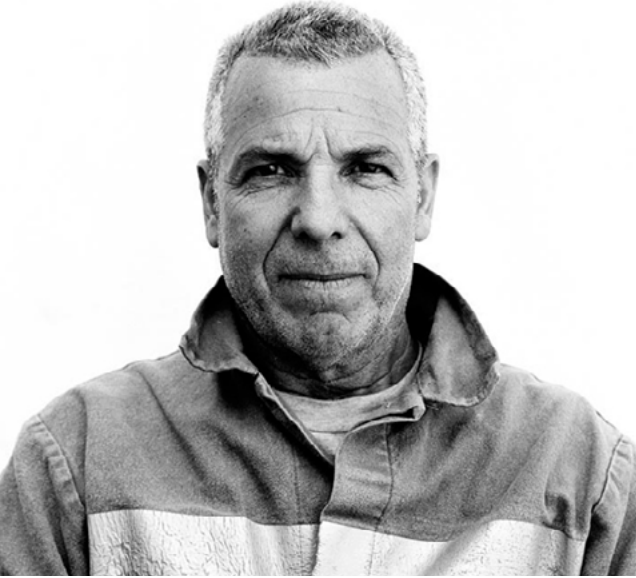
### **From mining to bomb making: Domusnovas plant today**

The history of mining in the area, as well as its steady decline, explains why there is now a bomb factory in Domusnovas. The mining sector fuelled a series of satellite activities, including

the production of industrial explosives in a plant at Domusnovas. This came to an end in 2001 when the company that owned it, Società Esplosivi Industriali SpA, converted its production from civilian to military purposes. In 2010, the plant's ownership passed to a new company, Rheinmetall Weapons Munitions (RWM), controlled by a German multinational corporation involved in the manufacturing of armaments, Rheinmetall Defence.

On the face of it, business for Rheinmetall Defence was booming, with global sales worth more than €3.2 billion in 2018. That same year, RWM's CEO announced plans to expand Domusnovas's plant further, with an investment of €35 million and the creation of between 150 and 200 new jobs. Then came the Italian government's decision in July 2019 to halt the export of bombs to Saudi Arabia and the UAE – a decision that cost around 130 of RWM's employees their jobs as demand immediately fell. For local residents working at the plant, these forced redundancies were their worst nightmare.

The case of Domusnovas is a complex one. On the one hand, Sulcis-Iglesiente's history of failing economic prospects and high unemployment has led some to prioritize jobs first and foremost, even favouring the production of armaments implicated in the suffering of innocent civilians elsewhere. Nevertheless, since armaments manufacturing in Domusnovas began, a number of civil society organizations and public figures, such as the local bishop, have opposed it and called for the development of other sources of employment in the region.



Portraits of miners who worked at Carbosulcis, a coal mine in the town of Nuraxi Figus in the province of Carbonia-Iglesias, Sardinia, Italy. Credit: Emanuela Meloni

## Investing in a better future for Sulcis-Iglesiente

One of the most prominent groups in the movement is the Comitato Riconversione RWM (RWM Reconversion Committee), established in 2017 and working with other associations to promote sustainable and peaceful development for Sulcis-Iglesiente. It has been engaged in a series of protests, advocacy and, more recently, legal activities directed at both local government bodies and ordinary citizens, with the aim of pushing for the military plant to be converted back to civilian use: for example, they envision that the workers at the plant, many of whom have chemical and steel-manufacturing skills, could be involved in the production of electric car batteries, a sector that has been growing recently. The committee also proposes to look beyond Domusnovas's plant itself. It explicitly supports the idea that the development of Sulcis-Iglesiente should be based on other activities, such as agriculture and sustainable tourism. This idea is in line with what some experts say: the area needs investments in infrastructure and renewed efforts to diversify its economy.

This is not a view shared by everyone: for example, some workers are sceptical that the plant can readily be repurposed for other forms of production. Nevertheless, there is broad agreement that the situation in Domusnovas can only be resolved

through a systematic, long-term approach that embraces the enjoyment of a range of different rights in the region. This means that, while the Italian government should be able to take steps to halt the suffering in Yemen and promote peace in line with its international commitments, Sardinian workers must also have the right to secure employment in the area where they can speak their own language.

It is perhaps not surprising that, given its long history of economic stagnation and governmental neglect, employment and technology have come to intersect in such a precarious and problematic fashion in Domusnovas. The current situation needs to be understood in this context. While it is understandable that the province's dependence on the production of armaments is a source of profound moral unease, particularly their deployment in a military campaign that has caused countless civilian deaths in Yemen and pushed the country to the brink of collapse, the Italian government should now focus on promoting a broader plan for sustainable development for Sulcis-Iglesiente and the Sardu-speaking population.

*The author would like to thank Mr Arnaldo Scarpa, spokesperson of the Comitato Riconversione RWM, and Ms Francesca Sanna, PhD Candidate in History and Civilization, Université de Paris.*



# Norway: Saami communities contend with the latest form of discrimination – ‘green colonialism’

Oula-Antti Labba

Nussir ASA, a Norwegian mining company, is planning to open a copper mine in Repparfjorden (Riehpovuotna in Saami), a coastal area of Saamiland in the northernmost part of the country. The project's supporters have sought to justify the project on the grounds that the large amounts of copper it produces are a vital element in the production of certain renewable technologies. For the indigenous Saami living there, however, it is a striking example of the threat of 'green colonialism' to their way of life.

Besides its long-standing status as part of Saami traditional lands, Repparfjorden has also been designated as a national salmon fjord, fed by a number of smaller watercourses. Nevertheless, despite many years of resistance from the Saami parliament in Norway, local communities and environmental groups, the Norwegian government approved the concession in February 2019. The only way to stop the mine now is through a legal battle in the courts.

In the meantime, should the Nussir mining process proceed under the current permit, preparations are under way for large-scale protests. This is not the first time the community has been forced to take action against the expropriation of their land in the name of development. In the 1980s, the controversial Alta hydroelectric power station triggered a series of highly publicized protests that, while failing to prevent the dam's construction, had a lasting impact on the status of Saami rights in Norway. Among

‘No machine should be allowed into Nussir before the case has gone through the court system,’ says Beaska Niillas, a Saami activist and politician who is mobilizing resistance to the mine. ‘It could be a bigger thing than the Alta conflict in the 1980s. Five thousand people have signed up to a list indicating that they will come and stop the mine.’

other issues, it contributed to the country’s subsequent ratification of International Labour Organisation (ILO) Convention No. 169 on indigenous and tribal peoples.

Saami are hoping that protests could again bring visibility to what would be a catastrophic development for their community. ‘No machine should be allowed into Nussir before the case has gone through the court system,’ says Beaska Niillas, a Saami activist and politician who is mobilizing resistance to the mine. ‘It could be a bigger thing than the Alta conflict in the 1980s. Five thousand people have signed up to a list indicating that they will come and stop the mine.’

An added challenge is that, notwithstanding the negative implications of the mine for the local ecosystem, many of its proponents have sought to justify it in environmental terms. For example, the Norwegian trade minister Torbjørn Røe Isaksen has pointed to the use of copper in electric vehicles, wind turbines and other ‘green’ technologies.

Unsurprisingly, Niillas regards these arguments with some scepticism. ‘It looks like the state uses the climate change argument when there is a benefit to the capitalist economic interest,’ he says. ‘In my opinion, in reality they are usually not so interested in driving climate-friendly politics.’

Renewable resources such as solar, wind, tidal, hydro, biomass and geothermal energy are growing rapidly, and are now accepted to be an essential element in climate change mitigation. However, these solutions require a considerable supply of a range of materials, including copper, the production of which is highly intensive in terms of energy consumption and emissions. The Nussir mine would have an immediate negative impact on the fragile Arctic environment. The dumping of the waste from the mine would be harmful to the fjord, the reindeer and the fish. The mine, its widespread infrastructure and its noise pollution would reduce reindeer-herding pastures to a minimum in the area. The implications for sea salmon fishing

could also be catastrophic. And the people who would suffer the most, while benefiting the least, are Saami.

Representatives of the Saami parliament highlighted the devastating impacts the mine would have, not only on the local environment but also on the livelihoods that depend on it, including reindeer herding and salmon fishing. The Repparfjorden area is an important calving and summer pasture for the reindeer in Fiettar district, whose long-established life cycles may now be disrupted by this development.

Environmentalists are also worried about the impact of the Nussir mining on sea life, particularly through the dumping of mining waste in

the oceans. Norway, along with Indonesia, Papua New Guinea and Turkey, is one of just four countries in the world where mining companies are allowed to dispose of mining waste in the sea. These mine tailings risk contaminating fish stocks in surrounding areas with heavy metals such as mercury, as well as disturbing spawning grounds, with devastating impacts on both the quantity and quality of local fish supply.

The implications, at both a community and national level, could be profound. Silje Karine Muotka, a member of the Saami parliament of Norway, argues that the country's fishing industry could be badly hit if the mine goes ahead. 'I am also really worried

A Saami woman stands surrounded by reindeer during the autumn migration in Arctic Norway.  
*Abbie Traylor-Smith/Panos*



about the impact of mining on the fish population, on the reputation of Norway as a fish-producing country and even on the ability to sell fish as human food internationally', she says.

The Repparfjorden case is not the only headache for Saami people. Recently a southern Saami reindeer-herding village lost a court battle against the Fosen Vind wind turbine company in the Storheia area of Trondheim in central Norway. The company is now planning to build a wind farm on the community's reindeer-herding pastures: once built, it will be the largest operating onshore wind farm in Europe. This is part of a wider shift across Scandinavia to wind farms. While they may offer the possibility of a cleaner energy supply, at present hundreds of wind turbines are being built with little appreciation of the potential negative impacts on grazing

and migration for reindeer populations – or the Saami communities which depend on them. Research suggests that reindeer movement is dramatically curtailed in areas close to wind farms. Analysing data gathered from GPS-trackers for reindeer, one study found that the construction of two relatively small wind farms in northern Sweden led to a decline by as much as 76 per cent in the use by herds of their original migration routes.

Despite these setbacks, Muotka says that the Saami parliament is now preparing its next steps with regard to the Nussir mine, including a study on its potential impact on Saami livelihoods. Every argument, every piece of evidence and every aspect of traditional knowledge will be needed if the community decides to take on the Norwegian government in the courts. ■



# Middle East and North Africa

In a context where ethnic, religious and linguistic minorities across the Middle East and North Africa (MENA) region face persecution, online hate speech has played an increasingly visible role in inciting violence and discrimination against them. While the Islamic State of Iraq and al-Sham (ISIS)'s brutal social media campaign has garnered much attention in recent years, the weaponization of the internet to vilify minority communities is widespread and not confined to ISIS alone.

In **Egypt**, for example, Coptic Christians contend with online hate speech on a regular basis, including from religious leaders, prominent journalists and even politicians. Technologies pose other human rights threats too, that may even be mainstreamed into public policy by governments themselves. In **Iran**, following the announcement of new restrictions in January 2020, members of unrecognized religious minorities are no longer able to register their identities on their biometric identity cards – a situation that could deny them access to many essential services and citizenship rights.

For communities with a long history of exclusion, the increasing collection of personal data is an understandable cause for alarm. The Covid-19 pandemic has made these issues around privacy even more acute. In **Lebanon**, for instance, alongside considerable economic barriers and regulations on their movement, some Syrian refugees may be reluctant to access virus testing due to fears that this could put them at risk of detention.

Nevertheless, the MENA region also offers some of the most inspiring examples of online activism by minority and indigenous community members using the power of social media and the internet to document human rights violations, highlight discrimination and hold perpetrators of abuses to account. Initiatives such as the Ceasefire programme in **Iraq** and **Syria**, a platform for citizens to report human rights abuses as they happen, demonstrate how the same technologies used against minorities by extremists and repressive governments can be successfully deployed as tools to promote accountability, tolerance and peace.

## Egypt: Copts continue to suffer the effects of hate speech online



Coptic children in Minya, Egypt. Credit: Luis Dafos / Alamy



The proliferation of social media networks and the expansion of internet use has led to new challenges related to monitoring and preventing hate speech. Depending on the structure and nature of the platform used, social media can help to counter hate or allow its spread through more decentralized means.

And while international law calls for the prohibition of hate speech, the ways different governments respond to the threat it poses vary widely – and in some cases governments can actively contribute to its proliferation online.

In Egypt, hate speech persists for a variety of structural reasons. These include the inability of the state, through its justice and public educational institutions, to mediate differences between ethnic and religious groups, not to mention its failure to institutionalize minority rights, thus keeping communities in a perpetual state of low-level conflict. The lack of legislation defining hate speech, let alone prohibiting it, has meant it remains a grey area in Egyptian law, with no measures in place to monitor or prevent it.

This has left intercommunal relations vulnerable to manipulation, as is evident in mainstream media where, depending on the political context, different messages are communicated at different times, including hate speech. A case in point is the

Al Youm Al Sabi online news site and newspaper, which in November 2019 featured a piece by the chief editor entitled ‘Muslim Brotherhood, Jews and Shiites: The trinity of evil in the world’, before widespread condemnation led to the piece being taken down from the site. However, on social media, the situation is more fluid as threads of hate speech can go unnoticed, despite the harm they cause.

#### *The attacks against the Copts of Kom al-Raheb*

Kom al-Raheb, a village in Samalut, Minya, is home to around 2,500 Copts. For years they have not been able to get a formal permit to build their church. Part of the reason is the resistance of some Muslims in the village on the basis that the presence of a church would be against their religious beliefs. With no other church nearby, however, the Copts eventually decided to use a house for prayer. On 10 December 2018, the first mass was held in the building, only to end with security forces demanding its immediate closure, deeming that it was illegal to pray in a building that had not been

While the Egyptian Constitution was amended in 2019 specifically to **criminalize incitement to hatred**, there is **no corresponding provision that punishes hate speech**.

Article 98(f) of the Penal Code punishes speech that constitutes 'contempt for one of the divine religions'.

registered as a church. This was despite the fact that Law 80/2016 on church construction, passed two years before, does not view the holding of a mass in a house as illegal, and indeed bans the closure of any place which has religious rituals conducted in it.

The next day, Copts stood outside the building to protest its closure and to prevent the removal of the electricity and water meters by the local authority, which would have effectively rendered the building uninhabitable. These protests were followed by violent attacks by some Muslim residents on Coptic homes in the village. Importantly, some of the assailants were incited through Facebook to engage in these assaults, using a number of different narratives that sought to exploit communal tensions. First, they actively exploited religion to mobilize other Muslims, using verses from the Qur'an to justify their claims. They also identified themselves as representing the pure faith which, they argued, bans any temples or churches for non-Muslims. By contrast, other Muslims who felt that their Christian

neighbours had a right to build their own place of worship were called 'traitors' and accused of accepting 'hush money' to allow the church to be built. The perpetrators on Facebook also argued that the Copts had brought 'strife' to the village by wishing to build a church, calling them 'dogs' who would have to pay 'a heavy price'.

While this undoubtedly constitutes the sort of 'incitement to discrimination, hostility or violence' that is explicitly prohibited by the International Covenant on Civil and Political Rights (ICCPR), contributing directly to the attacks that ensued, in the absence of effective legislation incidents such as this can easily go unpunished. While the Egyptian Constitution was amended in 2019 specifically to criminalize incitement to hatred, there is no corresponding provision that punishes hate speech. Article 98(f) of the Penal Code, commonly known as the blasphemy law, punishes speech that constitutes 'contempt for one of the divine religions'. While this law is frequently used to target freedom of expression and any perceived criticism of the official interpretation of Islam, it fails to protect citizens belonging to other faiths as well as those such as agnostics and atheists who do not subscribe to any religion at all. While a number of laws were developed to deal with online crimes, including Law 175/2018 (the IT law) that came into effect in August 2018, just a few months before the attacks in Samalut, none of these laws have been invoked in the official response.

Following the attacks, police forces arrested individuals from both sides and then established a 'reconciliation

session' – an extra-legal proceeding commonly used in the wake of communal violence that typically 'mediates' an informal resolution between groups without distinguishing between the perpetrators of the violence (usually belonging to the majority) and its victims (overwhelmingly members of minorities). The session ruled that the church issue be completely left to the state authorities, despite their failure to allow its construction for the previous three decades, and that no party should intervene in the case again. Hence, the de facto decision was that the Copts would continue to be denied a place of worship for fear of provoking some of their Muslim neighbours – a situation that favoured the existing balance of power in the village rather than the rights of the minority.

Indeed, what is online is impacted by that which is offline and impacts it in return. On the one hand, as the Kom al-Raheb case shows, social media can be a catalyst for hate speech and violent attacks when left unchecked – hence the need for more effective monitoring and reporting of hate speech online. At the same time, beyond the internet, there is a wider failure to ensure that rights are guaranteed for all, including the rights of religious minorities to practise their religion.

Local authorities repeatedly favour decisions that maintain the existing status quo and often perpetuate discrimination against minorities. In some parts of the country, there is also a social acceptance of negative speech against non-Muslims that is not being adequately challenged by Egypt's educational institutions. This in turn is reflected in the absence of meaningful institutional mechanisms to identify and punish hate speech against minorities. While there are many important steps that can be taken to curb the prevalence of hate speech on social media, including systematic monitoring and reporting, there also needs to be a broader transformation of Egyptian politics and society in general.

With clear legal protections for all religions in place and a concrete commitment to minority rights, as well as a just and equitable system of governance that respects human rights, hate speech on Egyptian social media would likely be far less prevalent than it is today. In the meantime, the situation online will continue to replicate the same climate of hostility and discrimination for minorities that they experience in their daily lives.

# Iran: For religious minorities, biometric identity cards threaten to become a new tool for surveillance and discrimination

Miriam Puttick

Around the world, governments and private enterprises alike are increasingly moving towards the adoption of biometric technology to enhance their daily operations in a variety of sectors – from banking to immigration to crime control.

Biometric technology involves the collection of physical data, such as fingerprints, iris scans or voice samples, which are unique to an individual. It is often lauded for the benefits it offers in terms of enhancing security, improving user experience and preventing fraud.

However, the adoption of biometric technology also poses significant challenges and threats to privacy and human rights. Some biometric identifiers can reveal sensitive information about a person – such as health status or ethnic background – which can be misused in discriminatory ways. If biometric identifiers are used in multiple types of governmental transactions and linked to a central database, they can also provide significant and

detailed information about a person's activities. Without strong protections in place, biometric data collected consensually for one purpose (such as identity verification) can easily be used for other purposes (for example, surveillance) without the knowledge or consent of the people involved.

In 2015, the Iranian government began phasing in a biometric national identity card: this is now the card issued to all new applicants and to anyone renewing an expired national identity card. The card features a smart 'chip' and stores biometric data including iris scans, fingerprints and facial images. The smart identity card, or the 11-digit number associated with it, are required in order to access a whole range of government services

– from obtaining a driver’s licence to accessing a pension. Iran’s banking sector has also shifted towards the adoption of biometric methods and now requires customers to provide their smart identity card in order to carry out many banking transactions. More worryingly, Iranian officials have also announced plans that would require citizens to verify their identity using the smart identity card in order to access the domestic internet network.

In a country where citizens are already subjected to high levels of surveillance, the introduction of the smart identity card raises significant concerns. The Iranian government has already used facial recognition technology to identify and arrest protesters and political dissidents, and the collection of biometric data potentially gives it the tools to do so even more efficiently. If biometric identifiers were made a requirement in order to access the internet, Iranians who express dissenting opinions online could be very quickly identified and targeted by the state.

Moreover, mandating the use of the smart identity card across a range of sectors could give the government access to very comprehensive information about a citizen’s activities, particularly in the absence of legislation restricting the collation and use of such data. While a draft Personal Data Protection Act has been under discussion in Iran, human rights groups have criticized it for allowing personal data to be processed without individuals’ consent for vaguely defined ‘security’ purposes, and for giving individuals linked to the security apparatus power to oversee the collection of data.

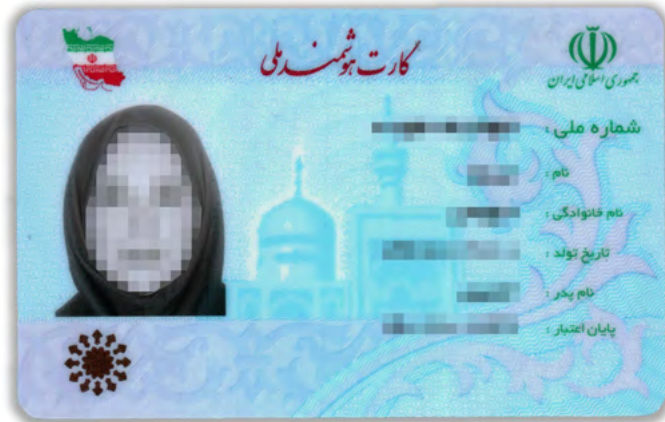
Recently, Iran’s new smart identity card has also turned into a vehicle of discrimination. In January 2020, the Iranian government ceased allowing applicants for the card to choose ‘Other’ in the religion field on the application form, which had previously been one of the available options. Instead, applicants must now choose one of the four officially recognized religions given on the form – Islam, Christianity, Judaism or Zoroastrianism. This leaves members of smaller religious minorities with only two options: either lie about their religious identity or be prevented from obtaining the card.

Iran’s unrecognized religious minorities – which include the country’s sizeable Bahá’í community, as well as smaller communities such as Mandaean and Yarsan – are already subjected to many forms of official and unofficial discrimination. They do not benefit from the legal protections offered to members of the four religions named in the Iranian Constitution. They are excluded from running for political leadership positions and often denigrated by Iran’s religious establishment. Some have faced attacks on their houses of worship or have been arbitrarily imprisoned as a result of their beliefs.

The Bahá’í community faces particularly harsh persecution from the state. The official position of the Iranian government is that the Bahá’í faith is a ‘man-made religion’ and a political movement disguising itself as a spiritual community. A 1991 government memorandum, signed by Supreme Leader Ali Khamenei, called for Bahá’ís to be dealt with in such a way ‘that their progress and development shall be blocked’ and the government actively

National ID card  
of the Islamic  
Republic of Iran.

Source:  
Wikimedia  
Commons.



excludes them from higher education and employment. Bahá'ís are also prevented from attending religious and social gatherings, and their homes are regularly raided, with their religious books and items confiscated.

While the government did not make any official announcement to accompany the removal of the 'Other' religion field, the change in policy seems to have been spurred by comments from a conservative member of parliament, Mohammad Javad Abtahi. In January 2019, he criticized the inclusion of an 'Other' option in the identification card's religion field, claiming that it meant the government was bestowing legitimacy on 'deviant' sects. He then wrote to the interior minister demanding a review of the application process for the smart identity card and the removal of the 'Other' option.

Since Bahá'í teachings forbid their followers from denying their faith, a Bahá'í citizen who wishes to remain faithful to the religion has no choice but to forfeit the smart identity card.

This has wide-ranging implications for access to social and economic rights. The card and its unique identifier are needed to complete an array of essential functions, such as obtaining a driver's licence, applying for a credit card, buying property and enrolling in university. If, on the other hand, Bahá'í report themselves as Muslims in order to obtain the card, the Iranian government would be equipped with statistical data that it could potentially use to deny their presence and distort the true religious make-up of the country's population.

As Iran continues to expand the usage and applications of biometric identifiers, the full implications of the transition to the smart identity card are yet to be completely understood. However, developments so far should serve as an early warning of the ways in which biometric technology can be used to accelerate discrimination, exclusion and surveillance if it is not well regulated within a rights-respecting legal framework.

# Iraq and Syria: Documenting human rights violations in conflict – the Ceasefire online reporting tool

Miriam Puttick

In conflict zones around the world, violations against minorities are often an inseparable element of the core conflict dynamics. States and armed groups will often harness long-standing tensions and stoke hatred against minorities as they vie for power and resources, while the escalation of conflict can exacerbate the vulnerability of already-marginalized groups.

In Iraq, for example, the rise of the so-called Islamic State of Iraq and al-Sham (ISIS) and other armed groups from 2014 onwards saw patterns of marginalization of the country's ethnic and religious minorities transform into widespread attacks and even genocide against those communities. Ethnic and religious minorities were uprooted *en masse* from their historical homelands and subjected to violations, including killings, abductions, property destruction, and attacks on their religious and cultural heritage. Footage of these atrocities was disseminated widely across social media platforms, which ISIS used with shocking efficiency to spread its ideology and recruit new members.

Monitoring violations of human rights and international humanitarian law in conflict zones often poses immense challenges. For one thing, the existence of armed violence often prevents human rights organizations, journalists, UN agencies and others engaged in monitoring from accessing the territories where violations are occurring. Local human rights actors, for their part, may become displaced or preoccupied with their own survival needs. When they do choose to continue their work, they operate at increased risk to themselves, often facing death threats from armed groups for speaking out or exposing violations. In situations where minorities

are disconnected from centres of influence or lack organizations defending their rights, violations can go completely unreported. Moreover, the high degree of political polarization that accompanies conflict and attempts by various actors to control the narrative of events often lead to difficulty in gathering accurate and impartial information on the human rights situation.

However, this does not mean that there is no information being produced in such settings. Thanks to the spread of mobile internet, social media platforms and smartphone technologies, ordinary civilians are able to document developments on the ground and share them with the outside world at the click of a button – even in the world's most dangerous conflict zones. Facebook, YouTube and other social media platforms are often awash with first-hand information, photos and videos coming directly from witnesses to violations. The content of social media is becoming difficult to ignore, as seen in the rise of open-source intelligence (OSINT) approaches. However, this content is often not in a format that can be harnessed effectively for human rights advocacy. Information shared online can be difficult to verify and often lacks crucial details needed to establish the nature of the violation and hold perpetrators to account. Moreover, intersecting privacy rules on a multitude of platforms mean that vast amounts of data are often not easily accessible to relevant human rights actors, such as international bodies.

These challenges provided the impetus behind the creation of the Ceasefire online reporting tool, a digital platform that seeks to enable 'civilian-led

monitoring' of violations of human rights and international humanitarian law in conflict settings. Piloted in Iraq as part of a joint project by Minority Rights Group International (MRG) and the Ceasefire Centre for Civilian Rights, the tool seeks to bridge the gap between traditional human rights data collection and unbounded crowdsourcing. Though accessible to anyone with an internet connection, the tool prompts users to report violations in a way that conforms with international legal standards and increases the future usability of the data.

The core component of the tool is a bilingual (Arabic-English) reporting form, which permits users at a minimum to specify the title, description, category and location of the human rights violation. The category function, which prompts users to choose from a predefined list of internationally recognized human rights violations, enables easy analysis and filtering of the data. In addition, the expanded version of the form asks for additional details about the victim, witness, consequences, motive and perpetrator of the violence, prompting users to supply information that could be important in determining the nature of the abuse according to international standards. For example, users are asked to give any details that would suggest the attack was carried out due to the victim's ethnicity, religion or culture – which can be used to establish the threshold for hate crimes, ethnic cleansing or genocide. Users can also attach photos and other documentary evidence to their reports or include links to YouTube footage or media coverage, which helps make the information verifiable.

Reports submitted through the form are stripped of personally identifying





information and plotted onto a live, interactive map visible on the tool's landing page, which shows the distribution of violations by location and type. Sensitive data, such as names and contact details of victims, witnesses and perpetrators, is stored securely on a secondary server in case it is needed for future follow-up or court proceedings.

However, civilian-led monitoring is not simply about providing new technological tools – it is also about empowering civilians themselves so they can use such tools effectively. Through partnerships with human rights NGOs, including minority-led organizations, MRG and Ceasefire conduct regular in-country training events for civilian activists. At the training sessions, participants are not only taught how to use the online tool, but also given a thorough grounding in international human rights concepts and components of strong human rights reporting, including interview techniques, victim protection practices and verification strategies. Also known

as 'bounded crowdsourcing', the logic of training smaller groups, who in turn train others, leads to the formation of a critical mass of skilled activists and organizations and results in a higher quality of human rights documentation.

Since the tool's launch in February 2017, more than 3,700 violation reports have been submitted by civilian activists. The online tool has thus served as a window into patterns of violations taking place as part of the conflict in Iraq that would otherwise go unreported. For example, through long-term partnerships and trainings with women's rights activists in Iraq, the tool has enabled the production of detailed information on the relationship between armed conflict and family-based violence, an under-studied and under-documented phenomenon. These cases led to the publication of a series of three reports on the topic, and the design of new interventions providing direct support to refugee and displaced women facing gender-based violence.

Yezidi men rebuild religious temples that were destroyed by ISIS in the town of Bashiqa, Iraq.

*Credit: Andrea DiCenzo/dpa*

In situations of escalating violence, the online tool offers the possibility of obtaining crucial information from the ground in real time. When large-scale protests erupted in Iraq in late 2018, reports of excessive use of force by security forces against peaceful protesters began to appear on the online tool. These cases were incorporated into a wider report on repression of civilian activists in Iraq, which was then used as a basis for urgent appeals and advocacy pushes at the UN Human Rights Council and in other forums.

According to the director of an Iraqi NGO, the value of the online tool lies in its ability to function as a secure outlet for activists engaged in human rights documentation in highly volatile contexts. 'In the current situation in Iraq, the major risk facing human rights activists and defenders is reporting violations. Many activists have faced threats and blackmailing for their reports, particularly if their identity is revealed. The online tool helps them prevent these risks as they easily use the tool and it is anonymous.'

Building on its initial successes in Iraq, the tool has since been expanded to other contexts in the region. Following the Turkish invasion of Afrin in north-western Syria and the mass expulsion of the city's mainly Kurdish population, the tool served as a crucial platform to document the violations taking place against the population of the area in the midst of a near-total media blackout. According to a Syrian Kurdish activist from Afrin, 'Up to now, all independent journalists are barred from entering Afrin, so there are no media or human rights reports covering

the situation there. With the Ceasefire tool, we were able to design forms specific to the area and give people on the ground the option of reporting violations over the internet. As a result, we are monitoring the situation without exposing researchers to the dangers of entering the territory.' Civilian activists were also able to uncover patterns of attack by Turkish-backed Syrian armed groups against Yezidi, Christian and Alawite villages around Afrin, about which very little is known internationally.

While the online tool has provided a way to surmount some of the obstacles to human rights monitoring in conflict, the work has not been without its challenges. Despite all reassurances of confidentiality, victims can still be afraid to report violations – fearing backlash from their families, their communities or armed groups. Where the authorities deliberately shut down or throttle internet access, there can be delays in urgent reports being uploaded online. Moreover, in situations of prolonged violence, even the most committed activists can begin to lose hope that an end is in sight – decreasing their motivation to go on with the documentation work. These challenges prove that technology alone is not enough to resolve the enduring problems of human rights. Sustainable change is unlikely to be achieved unless technology is deployed in conjunction with other measures – from political pressure to legal advocacy and education. However, harnessing technology as part of a multi-pronged approach can offer a modern strategy for dealing with modern challenges, which continue to change the landscape of human rights activism.

# Lebanon: For Syrian refugees, discrimination is the greatest barrier to accessing Covid-19 testing

Rasha Al Saba

Recent years have seen a real transformation in the way we treat patients and maintain the health of populations. Among these developments are advances in medical diagnostics technology, broadly understood as equipment and supplies that allow clinicians to measure and observe an individual's health to form a diagnosis.

Such testing is particularly crucial at every stage during a disease outbreak, as it allows for the mapping of who has a disease as well as who is at risk of becoming infected. Without diagnostic testing, it is impossible to strategize responses effectively.

The current Covid-19 pandemic demonstrates this clearly. The disease, which is caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), first emerged in Wuhan, China, in late 2019 before spreading rapidly across the world. By 11 March 2020, it was declared a pandemic by the World Health Organization (WHO). With governments racing to slow the spread of the virus, most recognize that access to testing is

a key measure that must be at the core of their responses. This is an approach backed by Tedros Adhanom Ghebreyesus, Director General of the WHO, who stated: 'Our key message is: test, test, test', during a press briefing on 16 March 2020.

Across the world there have been different barriers to putting this into practice, not only technical barriers but also social, political and economic ones. These issues are especially evident in Lebanon. Though it hosted significant numbers of Palestinian refugees before the outbreak of the Syrian conflict in 2011, since then its refugee population has risen substantially. According to the United Nations High Commissioner for

A Syrian refugee woman puts a face mask on a boy as a precaution against the spread of coronavirus in al-Wazzani area, southern Lebanon.

*Credit:*  
Ali Hashisho/  
REUTERS



Refugees (UNHCR), there are more than 1 million Syrian refugees registered in Lebanon, though different agencies estimate the true number to be in the region of 1.5 million. As a result, Lebanon is now the country with the highest per capita refugee population in the world. The large Syrian refugee population, many of whom are unregistered, were already struggling with the effects of years of discrimination before the outbreak of the Covid-19 pandemic.

### **Covid-19 in Lebanon**

Lebanon recorded its first case of Covid-19 on 21 February 2020 and went into partial lockdown after three weeks, closing schools, shutting its borders, and banning new arrivals by air, land and sea. It also introduced restrictions on movement, only allowing people to leave their houses to get essential goods or to perform some forms of key work, including food production, agriculture and health care delivery.

The Covid-19 pandemic hit Lebanon during one of its worst economic crises in decades. The country has long struggled to finance its health care system, following the end of the civil war and subsequent years of privatization. As a result, the national health system now finds itself under-resourced and insufficiently funded, struggling to maintain a proper supply chain of medicines and equipment at a time when the need could not be more acute.

Lebanon has focused its Covid-19 response on providing testing for individuals who present symptoms, as well as conducting random community testing. The government announced that testing would be available to everyone for free at Rafik Al-Hariri hospital, the country's main public hospital, located in Beirut. While resources in the state's health system dwindle, private facilities – which make up more than 80 per cent of the sector in Lebanon – have been able to deploy their resources and expand testing services successfully. For example,

the Lebanese American University hospital in the capital is running mobile clinics to provide testing for people living in remote areas. Another private hospital has gone further and developed robots to facilitate Covid-19 testing to prevent health workers from having direct contact with patients, thus reducing their risk of infection.

However innovative and effective these measures may be, the cost of accessing the services is a barrier for many in the country. One Covid-19 test from the private sector can cost between 100,000 and 200,000 Lebanese pounds, equivalent to US \$66–130 before the devaluation of the Lebanese pound. With the current economic crisis and unprecedented unemployment levels, purchasing a test is simply not an option for many. Moreover, the health system response to Covid-19 has failed to adequately incorporate the health needs of vulnerable groups, including refugees and migrants, people living in poverty and people living with disabilities.

### Disproportionate risks and impacts for refugees

As in many other countries, refugees and migrants in Lebanon face higher risks of contracting Covid-19 for a number of reasons, including inadequate living conditions, limited access to services and higher poverty levels.

#### *Housing conditions*

In alignment with Lebanese government policy, no formal refugee camps have been established in Lebanon in response to the influx of Syrian refugees in 2011. Around

one-third of those registered as refugees live in informal settlements or 'non-residential structures', where it is common for more than one family to live together in a single tent or unit. Sharing living spaces with families is also a common practice among refugees living in residential structures.

Living in overcrowded conditions in these residences, the risk posed to refugees sharply increases, particularly for those who live in informal settlements. This is mainly because access to sanitation facilities and adequate water is limited or lacking, and following certain public health measures to prevent the spread of the virus, such as social distancing, hand washing and self-isolation, has proven to be nearly impossible. Unfortunately, living conditions for most refugees have dramatically deteriorated of late, with a survey by UNHCR indicating that the number of Syrian refugees living in sub-standard conditions has increased significantly. Many are seeking more



According to UNHCR, there are **more than 1 million Syrian refugees** registered in Lebanon, though different agencies estimate the true number to be in the region of 1.5 million.

affordable options, but this usually entails even poorer quality housing.

#### *Health care delivery*

The way that health care is delivered to Syrian refugees is heavily influenced by where and in what setting refugees are staying in Lebanon. Generally, basic health care for registered refugees is subsidized and facilitated by the UNHCR in Lebanon. Some non-governmental organizations (NGOs) also provide health care, either through their own established health facilities or by subsidizing health care provided by the existing Lebanese public health facilities. In some cases, NGOs also provided some health services in camps, including health education and promotion.

However, during the coronavirus outbreak, the imposed lockdown measures and the additional restrictions on Syrian refugees put in place by some municipalities have had a huge impact on their access to health

care. NGOs reported their inability to deliver medication or provide medical consultations due to the outbreak response measures, putting many vulnerable refugees with underlying health conditions at additional risk.

#### *Socio-economic status*

During crises, refugees and migrants are among the first vulnerable groups to suffer job losses and health insecurity. Lebanon is no exception. Even before the financial meltdown in Lebanon, Syrian refugees had become more economically vulnerable. They are permitted to work only in a limited number of low-skilled jobs, and only if they are sponsored by a Lebanese national; a 2019 UNHCR assessment found that just a third of Syrian refugees had regular employment while almost three-quarters (73 per cent) lived in poverty.

Besides being badly hit by the economic crisis, Syrians have faced further hardship as a result of the restrictions on movement related to the Covid-19 response. Despite being regarded as essential work during the lockdown, jobs in agriculture and food production have not been accessible to refugees due to additional limitations on their movement imposed by local authorities, depriving many of an essential source of temporary income to meet their basic needs. Refugees who, before the pandemic, were already making ends meet by cutting their expenditure on food, health and education, are now struggling to survive in the face of further economic hardship. Recently, humanitarian agencies have warned that the risks of starvation facing Syrian refugees in Lebanon could even exceed the risks of Covid-19.



A 2019 assessment by UNHCR found that just a third of **Syrian refugees** had regular employment while **almost three-quarters (73 per cent) lived in poverty.**

## Barriers to refugees' access to Covid-19 testing

While testing plays a central role in managing the spread of Covid-19, Syrian refugees face considerable difficulties in accessing this service. These are rooted in their long-term marginalization in the country, the impacts of discriminatory treatment by local officials and a wider failure to communicate effectively with refugees – a reflection of the government's reluctance more generally to develop a more inclusive approach to the Syrian population in Lebanon.

### *Unclear communication*

At the beginning of the outbreak, it was unclear how Syrian refugees could access coronavirus testing and treatment. The government announced that the test was available for free for everyone with coronavirus-like symptoms, without stating whether refugees were included in this service. Later in April, UNHCR stated that any refugee who needed to access Covid-19 testing and treatment must first go through Ministry of Health screening via a hotline dedicated for this purpose. After the screening, a referral to Rafik Al-Hariri hospital (the main public hospital dealing with Covid-19 patients) might be possible, where the testing has been offered for free. Furthermore, UNHCR announced that it would cover the cost of treatment for Syrian refugees who contract the virus, but only if they have passed the ministry's screening. Yet some refugees expressed their fears over seeking testing or treatment for a variety of reasons. For example, it is unclear what type of information the ministry will collect through this screening process. As many refugees have been forced to live in Lebanon without residency

permits, given the difficulties in securing them, many are concerned that testing could put them at risk of harassment.

### *Marginalization*

Refugees and migrants are often the first to be stigmatized and are often unjustifiably blamed for spreading viruses. A number of Lebanese local officials and even some civilians have made the link, without evidence, between the outbreak and refugees. In a wider context of social exclusion, misinformation and anti-refugee sentiment have led to the introduction of discriminatory restrictions on Syrian refugees, especially those residing in rural areas and small towns. Some locals reported that they received messages from their local council to report the arrival of any new Syrian family, on the suspicion they might have fled from the camps to escape the spread of the virus. One local council even ordered residents not to let available flats or houses to any refugees coming from outside the town.

Some even went further and performed 'surveillance' of refugees residing in their areas, with activists reporting that a Syrian family was evicted after being suspected of contracting the virus. This came after the town's pharmacist reported to the local council that a member of a Syrian family, a young boy, purchased paracetamol tablets for his sick father. The family was evicted from their home and was in danger of becoming homeless without even being given the chance to check the validity of the accusation or to perform a coronavirus test. Unfortunately, this behaviour could easily result in other refugees choosing in future to avoid seeking medical help and treatment, with life-threatening implications for

vulnerable individuals and for the country's public health as a whole.

### *Discriminatory restrictions on movement*

In addition, local authorities in some regions of the country have introduced further restrictions on the movement of Syrian refugees that do not necessarily apply to Lebanese residents. According to Human Rights Watch, at least 21 Lebanese municipalities have applied discriminatory restrictions on Syrian refugees. For example, a municipality in Bekaa has allowed Syrian refugees only four hours per day to leave their homes to perform essential tasks, while Lebanese residents are entitled to much more time to perform the same tasks. The local council deems these measures necessary in order to prevent the spread of Covid-19.

However, tight restrictions on the movement of Syrian refugees, such as curfews, existed even prior to the Covid-19 outbreak and as a result of increasing social tensions and anti-Syrian sentiment in the country. Sadly, these practices have been exacerbated during the coronavirus pandemic. Many refugees have not even been given the chance to escape overcrowding and seek better quality housing conditions.

## **Towards an inclusive public health response to Syrian refugees in Lebanon**

The Covid-19 pandemic, like other public health emergencies, has brought long-standing social inequalities to the surface across the world – and Lebanon, with its large refugee population, is no exception. Simply from the perspective of effectively

containing the spread of the virus across the country, the importance of a national response that is collective and inclusive is clear. This means it is vital to ensure that everyone in Lebanon with Covid-19, including Syrian refugees, can access testing and treatment. This will be difficult, however, until Syrian refugees can be sure of receiving these services free of charge and without fear of being penalized for doing so.

This will require a concerted effort from the government to reverse the long-standing marginalization of Syrian refugees in the country, as well as a more positive engagement with communities. This should include more effective dissemination of accurate and relevant information regarding the prevention and transmission of Covid-19, while at the same time challenging broader misinformation that seeks to link refugees with the spread of the virus. Lebanese authorities will also need to address the underlying issues that put Syrian refugees at greater risk of contracting the virus, from lack of water and sanitation to overcrowding and inadequate housing. Any restrictions on the rights of refugees, such as curfew, should be legal, necessary, proportionate and non-discriminatory, in line with international human rights law.

More broadly, a more effective Covid-19 strategy will also require a move towards a stronger rights-based approach to the treatment of Syrian refugees in the country. Greater service provision, improved resources, better access to information and a wider move away from discriminatory surveillance to inclusive support will not only help protect vulnerable Syrian refugees from the threat of the virus, but also benefit the country as a whole. ■





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**Technology increasingly permeates every aspect of our lives, from the use of big data and information and communication technologies to artificial intelligence and automation. These developments are often framed around issues such as efficiency, speed and innovation, but for minorities, indigenous peoples and other marginalized groups there are often very different forces at play – the replication of existing patterns of exclusion in new forms.**

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**With minorities and indigenous peoples disproportionately represented among the world's poor, it is not surprising that poverty is itself a major barrier to these groups accessing mobile phones, computers and other technologies. The need for a more inclusive approach to technology is therefore more urgent than ever, with an emphasis not only on affordable pricing and accessible delivery, but also culturally appropriate and inclusive design.**

**Without concerted efforts to ensure they have positive outcomes for minorities and indigenous peoples, technologies could instead reinforce their exclusion. From biometric databanks to CCTV, surveillance is becoming more commonplace across the world, with deeply troubling implications for individual privacy, freedom of movement and other rights. When these technologies are actively mobilized to target certain communities, there is the possibility of systematic human rights violations on a scale rarely realized until now.**

**This volume explores the implications of technology for the future of minority and indigenous rights worldwide, and also highlights their potential to bring positive change. From citizen-led monitoring and reporting of human rights abuses in conflict zones to digital mapping of logging in communal forests, there is considerable opportunity for technologies to support land rights, secure justice and empower community members. However, human rights must be at the heart of how we manage and develop these technologies. For minorities, indigenous peoples and other marginalized groups, the potential to achieve greater equality and recognition could be huge – but only if they are able to participate fully in that process themselves.**