etc GROUP
monitoring power
tracking technology
strengthening diversity

ACTION GROUP ON EROSON, TECHNOLOGY AND CONCENTRATION

END OF YEAR REPORT 2021

Artist: Isabelle Morgan

www.etcgroup.org

We are a small, international, research and action collective. We are committed to social and environmental justice, human rights and the defence of the web of life. We are aligned with diverse popular and social movements and civil society organisations who share these values, particularly in the Global South. Our staff are based in Argentina, Canada, India, Mexico, the Philippines and the UK. Our Board is drawn from five continents. We have consultative status at the United Nations.

We are deeply grateful to all those of you who have supported our work in 2021, including the 11th Hour Project, Agroecology Fund, Bread for the World, Clif Bar Family Foundation, CS Fund, Heinrich Boell Foundation, Misereor, The Nell Newman Foundation, The Christopher Reynolds Foundation, Rosa Luxemburg Stiftung, Swift Foundation and individual supporters. Further donations gratefully received here.

We'd also like to thank all the wonderful artists who've worked with us this year, including:

- *Spanner in the System podcast artwork, Camille Etchart, www.cvetchart/graphic-design/*
- *Big Brother animation, Freehand Movement Studios, Nairobi, www.freehandmovement.com/*
- *Industrial Food Chain card illustrations: Becky Green, @space_nomad_sketches*
- *Game design, interactive infographic and portrait of Boris Johnson: Charley Hall, @CharleyHallArt*
- *Jack and the Cloud Giant illustrations, Garth Laidlaw, www.garthlaidlaw.com*
- *Peasant Food Web card illustrations and Long Food Movement report internal illustrations: Isabelle Morgan, @isabellemorgan_illustration*
- *Disruptive technologies in the Asia-Pacific region: map (not yet published), Nemcy, @creationsbynemcy*
- *Long Food Movement report cover, Stig, www.shtiggy.wordpress.com*

Thanks also to all the people who have helped us with translation and interpretation during 2021, including Amandine Semat, Barry Aboucar Alpha, Camminar Domandando, Chloé Pierre, Hirouchi Kaori, Kelvin Tim Mumali, Margaret Mkitsa Olesia, Mayra Parra, Peter Feldstein, Raymond Robitaille, Viviana Tipiani and Yann Meurot.

Sign up to our newsletter to keep up to date with all our news: action.etcgroup.org. Contact etc.comms@gmail.com with thoughts and ideas, or contact us on Facebook or Twitter.

Finally, many thanks to the editor of this report, Nicola Baird.

March 2022

Contents

Introduction

In 2021, along with almost everyone else across the world, ETC Group experienced the turbulent and unpredictable winds of the Covid-19 pandemic buffeting both the wellbeing of our staff and their families and our organisational plans and strategies. We felt like we spent most of the year leaning into this incredibly strong headwind, but we are pleased to report that we still managed to make some important steps forward during the year.

These included promoting regional and international discussions about how rural and urban communities had confronted the pandemic and found ways forward focused on solidarity and organising (see pp10-11); co-launching the Long Food Movement report, which charts an alternative food systems future over the next two decades (see pp6-7); investigating and publishing a critical and timely exposé of the vested interests at play at the Food Systems Summit (see pp8-9); collaborating with allies in Saami territory and across the world to stop an egregious solar geoengineering research proposal (see pp12-13); and creating a series of articles, podcasts and events to inform organisations and communities about the 'doublespeak' traps posed by concepts such as 'Nature-based solutions' (NBS) and 'Net Zero, and the threats of geoengineering projects.

We were also able to show that many governments have responded to Covid-19 by opening the floodgates to a tsunami of new 'disruptive' technologies and corporate convergence. For example, our regionally focused research in 2021 showed that the Latin American and Asia-Pacific regions' relationship to industrial technology was transformed within weeks of the beginning of the pandemic, with digital technologies in particular gaining a cult-like following amongst those regions' governments, with little attention given to their real future impacts on people and the environment.

Despite being confined to our homes for much of the year, we were still able to meet, strategise and share information online extensively, as can be seen throughout this report. This included working with our allies and their constituencies, tracking and sharing information about the incredible rise of digital platforms and data-driven technologies across the food chain, and investigating how they impact communities and food sovereignty (see pp14-15 for example). We contributed to this sharing of experiences and knowledge about the digitalisation of agriculture in many spaces including Latin American technology assessment network TECLA, the global Just Net Coalition, the UN Committee on World Food Security's Civil Society Mechanism, and the new North American Digital Agrifood Working Group.

We were, of course, almost completely unable to meet others in person – our colleagues, our allies, and the decision-makers we would usually aim to meet with – including at the intergovernmental meetings we participate in. The Convention on Biological Diversity's COP15, originally planned to be held in China in October 2020, has still to take place. Nevertheless, we were still able to collaborate online with allies to share our concerns, including about the proposals for a new Post2020 Global Biodiversity Framework, and about the need for horizon scanning and technology assessment to be prioritised.

On the other hand, the UNFCCC's COP26 climate change negotiations, which did take place in Glasgow in November 2021, opened its doors wide to the fossil fuel lobby whilst shutting them firmly in the face of many from the Global South via vaccine apartheid and chaotic visa arrangements. We challenged COP26's resulting dodgy trade initiatives and flashy promises, including the US-UAE-led 'Agriculture Innovation Mission for Climate' designed to rebrand

agroindustry as a climate hero, and US-China plans to implement geoengineering technologies (see pp12-13).

We were also able to prepare the way for extensive popular outreach with allies in 2022, through our new creative communications strategy – which this year included the launch of an experimental illustrated board game and a new animation (both unpacking threats to the future of food) – and our new work on narrative analysis, which essentially convenes spaces to collectively unpick and replace industry PR and spin (see pp16-19).

We also launched a new website, assess.technology, to support participatory technology assessment and provide much needed information about new technologies and regional technology assessment platforms, TECLA and AfriTAP (see pp10-11).

Finally, the prohibition on travel arising from the pandemic gave us the time for some much-needed internal reflection, as we move forward with our plans to recreate ETC Group as a global collective, reviewing our mission, vision and ways of working along the way. We also expanded in 2021, and we now have staff based in Argentina, Canada, India, Mexico, the Philippines and the UK. We are very much looking forward to 2022, when we hope our plans and reflections will be translated into renewed energy and enthusiasm for our mission: to work with others around the world to defend the integrity of the web of life and the diversity of livelihoods and communities that are the basis for just and ecological agri-food systems.

Our work throughout this difficult year reaffirmed our faith in traditional knowledge and organising, and the crucial role that Indigenous and peasant communities, pastoralist, artisanal fishers and others play in terms of providing food for the majority of the world's population and protecting the web of life.

We wish you, your families, friends and colleagues all the best – good health, well-being and happiness in 2022.

Niclas Hallström
President of the Board of Trustees

Long Food Movement and charting an alternative to the Food Systems Summit

- We looked to the future, with IPES-Food, charting an alternative food systems future in our "Long Food Movement" report.
- We engaged with allies to share experiences and concerns about the digitalisation of food and agriculture, especially its impacts on peasant agriculture and territories.
- We denounced AIM4Climate (Agriculture Innovation Mission for Climate), an initiative to refurbish agroindustry as a climate hero.

In 2021, together with our allies, we focused on the battle to stop food and agriculture systems being hijacked by agribusiness, data and retail corporations. They have been aggressively promoting digital farming, new biotech and carbon markets as the future of food. We co-published a visionary Long Food Movement report, which considers where we really want to be by 2045 and offers ways of getting there.

The #BattleForTheFutureOfFoodSystems was front and centre of the political agenda during 2021, with the controversial Food Systems Summit (FSS) scheduled for the fall, with a presummit in July. A Food Systems Summit may sound like a great idea, but sadly it's not: agri-food, data and retail corporations have been pushing for it as part of their bid to wrest control of the governance of food and farming away from governments – sidestepping and undermining the UN institutions that already exist for this purpose (see "Corporate concentration in the spotlight" pp8-9 for more about the FSS).

In parallel to all of this we launched a ground-breaking new report together with IPES-Food, supported by an advisory committee. "A Long Food Movement: transforming food systems by 2045" takes a longer-term view, boldly predicting what food systems might actually look like in the year 2045 under two very different scenarios. It compares and contrasts a sterile, unequal, corporate techno-food future, governed by Big Food, Big Data and algorithms, which breaches planetary boundaries, with the banquet of plenty that could be achieved if civil society and social movements from all walks of life joined forces to challenge the agribusiness technofix agenda. From ongoing Indigenous struggles against colonisation to the anti-globalisation protests of the 1990s that led La Via Campesina to introduce the concept of food sovereignty, it is clear that civil society – in all its diverse forms and scales of action – is already building a long food movement and is a powerful change-maker.

As part of this work, we explored how bio-digital corporations could use climate rhetoric and the concept of "Nature-based solutions" in the coming years to consolidate their grip on the food chain. We also collectively mapped out examples of strategic options for transforming financial flows, governance structures and food systems from the ground up.

2021 highlights
FEBRUARY: We started off the year with a series of conversations about how the food system might change as corporations push new technologies hard on the back of the pandemic. This included ETC Group's Veronica Villa and HOMEF's Mfoniso Antia explaining how this trend is already unfolding in Latin America and Africa at the 2021 Oxford Real Farming Conference (also in Spanish and French).

MARCH: Together with IPES-Food we published the 176-page Long Food Movement report, which charts an alternative food systems future and opportunities for long term transformation. The research with IPES-Food had been underway for two years, and the launch came just at the right moment, as corporate food interests escalated their efforts to grab the food agenda with the false-fix Food Systems Summit. ETC and IPES-Food were able to present a different people-powered agenda.

We participated in the Civil Society Mechanism (CSM) of the Committee on World Food Security (CFS), contributing to a key document, "CSM submission to the e-consultation for the HLPE Report on Food Systems and Nutrition", especially with a view to highlighting our concerns about the digitalisation of agriculture, which has been pushed aggressively on the back of the pandemic. Neth Daño led a civil society consultation on Sustainable Development Goal 2 (SDG2 focuses on food, agriculture and nutrition) during the Asia-Pacific Peoples' Forum on Sustainable Development. She was also invited by the FAO Regional Office in Asia-Pacific as a speaker in a parallel roundtable, also on SDG2, as part of the Eighth Asia-Pacific Forum on Sustainable Development (APFSD8).

APRIL: We were involved in the Latin American process about the implications of a "Digital Future for the Latin American People" co-convened by América Latina en Movimiento (ALAI). ETC Group's specific contributions focused on the digitalisation of agriculture and food systems.

MAY: UN DESA invited ETC Group's Neth Daño to join an experts group meeting on SDG 2 in preparation for the High-Level Political Forum (HLPF) 2021. Here she was able to highlight ongoing trends and raise our concerns about bio-digital convergence directly with governments and the UN (for more information about bio-digital convergence see also pp8-9 and pp14-15)

We furthered debate in the Latin American region with another article on biometric data and surveillance capitalism in La Jornada, and a critique of the Gig Economy and its harsh impacts on those already having the least resources and employment opportunities.

JULY: During the summer "pre-summit" of the FSS in New York, we exposed what was really happening at the FSS, publishing ETC Group's Communiqué #118, "Hijacking Food Systems: technofix takeover at the FSS" (for more information about this see pp8-9).

SEPTEMBER: During the boycott of the UN Food Systems Summit, ETC's Research Director addressed the opening plenary of the counter summit focusing on how this governance grab links to trends in digitalisation and "Nature-Based Solutions" (NBS). We also participated in other counter-summit events.

NOVEMBER: We increasingly focused on assessing what the planned digital tsunami might mean for agriculture and food. During the UNFCCC COP-26 negotiations in Glasgow, UK, in November, we flagged up problems at the launch of the "Agriculture Innovation Mission for Climate" (also known as AIM for Climate) led by the US and UAE, which aims to reframe industrial agriculture as a climate solution. First seen at the FSS, this initiative, with its false claims about Net Zero, presents industrial agriculture villains as climate change heroes.

Find out more:

- Read "A Long Food Movement: transforming food systems by 2045". The full report and executive summaries in English, Spanish and French can all be found here.
- Listen to our podcast about the digitalisation of agriculture and food systems in Central and Latin America, "Utopías o Distopías: agro y campo" (in Spanish).
- Learn more about the real purpose of AIM for Climate: "As big oil states plan to promote energy-hungry agtech as a 'climate solution' at COP26, it's time to question their AIM".

Corporate concentration in the spotlight

- We're conducting research into corporate concentration in a wide range of conventional and new agriculture and food sectors, which we will publish in 2022.
- We exposed the digitalisation coup being planned under cover of the Food Systems Summit (FSS) in our new communiqué, revealing the many corporate and philanthro-capitalist actors and some of the cosy relationships between them.

Exposing and resisting corporate concentration in food and agriculture-related sectors continues to be a key priority for ETC Group. In 2021 we accelerated our research into a growing phenomenon, 'bio-digital convergence' – the convergence of biotech and digital interests around life, food and physical systems. These bio-digital strategies threaten to remodel food and agriculture systems to suit commercial tech interests at the expense of farmers and the environment. We collaborated successfully with social movements and civil society to expose the coup to drive this forward, which was being planned under cover of the Food Systems Summit (FSS).

In 2021 we continued our comprehensive research investigating food and agricultural sectors including seeds, agricultural chemicals, fertilisers, farm machinery, poultry and livestock genetics, animal pharmaceuticals, food retail and commodity trading.

However, we have now extended it to include new technologies whose proponents are increasingly looking to food systems for new markets. These include companies manufacturing and deploying agricultural drones, sensors, spectral imaging, technology platforms/cloud servers and satellites. We intend to publish our research into this ongoing bio-digital convergence in early 2022, updating our hard-hitting 2019 report "Plate Tech-tonics", which mapped corporate power in food and agriculture in ten key sectors. ETC's renewed research and approach to corporate concentration has caught the attention of ethical investors.

In investigating and exposing the real story behind the 2021 Food System Summit (FSS) we showed how agribusiness interests had organised themselves into coalitions or worked through proxy think tanks to try to control the food system narrative, and we challenged the 'Nature-based solution' trap that could lead to Indigenous and peasant territories being grabbed for new carbon markets. The FSS's proponents argue that the 'food system' is broken, that population growth and climate change mean that we will not be able to feed everyone, and that only new corporate technological developments can save us. But this is a story that has been carefully constructed by those who stand to profit from it.

Civil society and social movements found themselves being marginalised by this new wave of corporate 'multistakeholderism', and critical issues such as human rights or corporate monopoly in the food system were absent from the planned FSS agenda. ETC worked with many others to shine a spotlight on this hugely problematic summit, participating in the resulting civil society boycott of the FSS (including by speaking and hosting events at the counter summit and blacking out our website for the duration of the event).

A genuine summit would challenge the industrial food system's impact on rights, food, health, climate and biodiversity more deeply, and have, at its very foundation and core, the interests and meaningful participation of the peasants, smallholders, pastoralists, fishers, Indigenous peoples and urban gardeners that feed the overwhelming majority of the planet's population.

2021 highlights
FEBRUARY: We launched the prototype of our unique card game "Disruption! The Battle for the Future of Food" in English and Spanish, with giveaways on Instagram and Facebook. Players take on the role of corporations and the board game has an important educational message for players about how corporate concentration works in relation to the battle for the future of food. But it is also fun, allowing players to

defend the commons and the Peasant Food Web that nurtures them, or to run big corporations, grabbing land and resources. (See more about the concept and impact of this game on pp16-17)

MARCH: We launched a 176-page report "A Long Food Movement: transforming food systems by 2045" and followed it with a series of webinars on the Long Food Movement that took place in the following months in Africa, Europe, North America and Latin America. A 12-page executive summary of the report is available in English, French and Spanish (for more detail and links see pp6-7).

JUNE: Neth Daño presented ETC Group's concerns about bio-digital convergence, corporate consolidation and the need for technology assessment to UNCTAD's Civil Society Dialogue, in an online discussion organised by the Secretariat of the UN Commission on Science and Technology for Development (CSTD), with more than 120 civil society participants from across the world. We also wrote (in Spanish) about biodigital convergence in Latin America, and the impacts of digital communication and social media on interpersonal relationships and social norms.

JULY: During the summer 'pre-summit' of the FSS in New York, we exposed what was really happening at the FSS, publishing ETC Group's Communiqué #118, "Hijacking Food Systems: technofix takeover at the FSS". Here you can find out how the FSS process and its likely follow-up threaten multilateral decision-making in the UN (specifically the Committee on World Food Security (CFS)); how the FSS is promoting a digitalisation tsunami in food and agriculture; and more about the key corporate and philanthro-capitalist actors, their shared interests and some of the cosy relationships between them.

SEPTEMBER: Together with others we made a strong statement about defending food sovereignty by boycotting the UN Food Systems Summit, and symbolically blacking out our website. This boycott was in solidarity with all the peasant farmers, small-scale food producers, Indigenous Peoples, NGOs, agricultural workers, family farmers and researchers who also reject the Food System Summit process and what it represents.

We contributed a chapter on "Transforming the Broken Food Chain into a Just Food Web" to "Crash Barriers for post-Covid-19 Food and Agricultural Systems", edited and published by Rosa Luxemburg Stiftung. Our chapter addresses corporate consolidation in global food systems and suggests ways in which civil society and grassroots organisations can work together to transform these challenges to benefit communities.

Find out more:

- Find out how the digitalisation of agriculture and food could affect farmers' rights in this blog.
- Read our FSS exposé, Communiqué #118: "Hijacking Food Systems: technofix takeover at the FSS", also available in Spanish and French.
- Listen to our easy access podcast "Banana-drama", in which Neth Daño reflects on global food systems, and our four Spanish-language podcasts about the key problems with the FSS: https://www.etcgroup.org/es/content/cuatro-mini-podcasts

Tracking and assessing pandemic-propelled technologies

- Our 'Which Way Forward?' dialogues generated key insights into people´s alternatives in the face of the pandemic, in terms of food, health and organising.
- Our research demonstrated that the pandemic propelled a new wave of disruptive technologies forward in Latin America and the Asia-Pacific region.
- We launched a new website, assess.technology, to support participatory technology assessment and provide information about new technologies.
- Our regional technology assessment platforms, TECLA and AfriTAP, led regional exchanges about the pandemic's impact on food systems.
- We began to explore and assess the expansion of digital processes in agriculture and food, to underpin future work on this key emerging trend in 2022.

ETC Group cautions against the continued imposition of new technologies with little or no oversight and a blatant disregard for their potential impacts, and in 2021 we showcased how this is happening in the Asia-Pacific region. Concern about the impact of these technological 'fixes' is at the heart of our 'horizon-scanning' and calls for participatory technology assessment processes, built alongside popular and social movements who represent those likely to be most impacted.

It was long predicted that a pandemic like that caused by SARS-CoV-2 would take place sooner or later. Now, in its wake, increasingly disruptive technologies have gained new impetus, sweeping ever more rapidly across much of the world without being checked or challenged. They threaten irreversible damage to people and our planet, even though their promoters claim they will do the opposite. For example, in the Asia-Pacific region – a key focus for our work in 2021 – emerging technology companies have rapidly infiltrated and come to dominate a number of key economic sectors as a direct result.

There's an urgent need for technology assessment – not just equal access to technologies and the capacity to monitor and reject them if necessary, but also to anticipate and analyse the broader implications to ensure the right technology is put in place.

To regain control over vital decisions about technology we need to understand not just the science, but the futures that are being imagined and the potential impacts on food production, farming communities and biodiversity. The tsunami of approaching technologies include:

- **digitalisation**, including the collection, processing and mobilisation of data relating to human behaviour, genomes, ecosystems, and agricultural and fishing practices.
- **synthetic biology**, involving the design of living organisms and processes from gene sequences, and
- **geoengineering**, the intentional, large-scale technological manipulation of the Earth's systems.

You can find our collected essays and infographics about disruptive tech in Asia on our new website, assess.technology, which we launched in 2021 in English, French and Spanish. This website provides information, tools and an online space for people around the world to collaborate around the call for participatory technology assessment, and to share information about the potential negative impacts of new and emerging technologies. Resources include values for technology assessment (protection of autonomy, precaution and people's control) and key principles (relating to care, transparency and consent).

Much of our work promoting participatory technology assessment involves supporting the creation of spaces for people to bring their own experience of the food and agriculture system to these conversations. For many years TECLA has taken this approach in Latin America, with the Africa Technology Assessment Platform (AfriTAP) also beginning its work in 2020, which is now starting to bear fruit, despite pandemic-imposed restrictions.

In 2021, TECLA and AfriTAP deepened this work in Latin America and Africa by organising online "Which Way Forward?" dialogues. These regionally focussed exchanges considered how the pandemic had affected participants' experience of food systems, as both producers and consumers. What were their experiences of trying to distribute food to people on a low income? How many people were struggling to access food? What role did technology play in the first months of the pandemic?

We found that despite the havoc wrought by the pandemic, it was true that some food growers had found new opportunities to sell their food locally direct to consumers, or online. Nevertheless, it seemed that large corporations tended to be governments' favoured conduit when it came to getting food to people, which more than outweighed the more positive outcomes. Concerns were also expressed about needing to have access to phones or computers to access food.

Other 2021 highlights

MAY: We co-hosted a side event for the 2021 UN STI Forum, "Covid-19: Strengthening Science and Technology and Addressing Inequalities" which included presentations from Dr KM Gopakumar (Third World Network), Anita Gurumurthy (IT for Change) and Silvia Ribeiro (ETC Group) and was chaired by ETC's Tom Wakeford.

We also launched our new assess.technology website during the STI Forum, including at a further online side event chaired by Tom Wakeford, "How do we tame frontier technologies: lessons from the field", with presentations from lawyer and policy analyst Barbara Ntambirweki in Uganda, Niclas Hällström (What Next) and Dr George Profitiliotis (UNESCO Chair on Futures Research).

OCTOBER: We launched our new chatty podcast mini-series "Spanner in the System". Based on our research in the Asia-Pacific region this series looks at the many ways technology can cause big problems for the world's farmers and fishers and the environment.

NOVEMBER/DECEMBER: We also ran a series of online discussions on trends and developments in the application of new technologies in agriculture, industries and extractive industries among civil society representatives from across Asia. This enabled us to collectively get up-to-speed with technological developments from geoengineering to corporate visions for so-called 'disruptive technologies' (in advance of the CBD's COP15, which is rescheduled for April 2022).

Find out more:

- Find out why we need technology assessment
- Check out "Nirvana or nightmare? Asia-Pacific's new wave of disruptive technologies"
- Listen to our new podcasts about the digitalisation of food and agriculture tech in Latin America from our tech assessment platform, TECLA (in Spanish)
- Read AfriTAP's recent newsletter. "What's new with technologies in Africa?" (December 2021)
- Listen to "Technology under Peoples' control: A participatory vision for biodiversity"

Grounded: solar geoengineering stopped for now

- We supported the Saami people, together with others around the world, to stop planned solar geoengineering experiments in Sweden.
- We ran a high-profile live streamed event challenging solar engineering, together with leading scientists, Indigenous leaders, youth and climate activists.
- We raised the red flag challenging geoengineers' attempts to re-label dangerous geoengineering technologies as 'climate solutions' at COP26 under the deceptive 'Net Zero' banner.

The lack of real commitments and actions to address the causes of global climate chaos from the largest greenhouse gas emitting countries has emboldened powerful actors, from these same countries, to make a renewed push for untested and dangerous geoengineering proposals. Nevertheless, Indigenous peoples and environmental organisations had a great victory in 2021, stopping solar geoengineering experiments.

Almost exactly a decade after ETC Group and allies successfully stopped the controversial SPICE geoengineering test in the UK, we found ourselves again facing a proposal to test solar geoengineering hardware – this time in Sweden. One of our key priorities (and successes) in 2021 was to support the Saami people to challenge and stop the SCOPEX solar geoengineering experiment planned over their territories. More broadly we wanted to challenge the promotion of dangerous geoengineering technologies as supposed solutions to climate change at the UNFCCC's climate change negotiations.

Modelling shows that solar geoengineering could cause droughts in Africa and Asia, disrupt the monsoon and endanger the source of food and water for millions of people, especially Indigenous peoples and communities in the Global South. Yet it is currently being heavily promoted, having received a funding boost from interested billionaires.

> *"Each time geoengineers promise to 'consult' better, deliberately missing the point that consultation does not equal consent. When communities and Indigenous people say no to planet-altering schemes being launched from their territories it is disrespectful to mishear that as 'needing more consultation'."*
> *Jim Thomas, Research Director.*

Meanwhile, geoengineering technologies are being advanced as acceptable climate measures at the UNFCCC climate negotiations, under the banners of 'Nature-based Solutions' (NBS) and the equally dubious concept of aiming for 'Net Zero' instead of real zero emissions. Yet these largely non-existent technologies are based on biased scientific theories that will actually enable the fossil fuel industry to continue extracting and polluting under the deceptive mirage that is 'Net Zero', and all have associated negative environmental and social impacts.

For example, key climate models have a built-in problematic assumption that the removal of massive amounts of geoengineered carbon dioxide will limit global warming. However, it is now generally acknowledged that estimations of the volumes of carbon dioxide that can be captured through Bioenergy and Carbon Capture and Storage (BECCS) and Direct Air Capture (DAC), as proposed in earlier IPCC models, were unrealistic. Countering these government and corporate narratives is essential if we are to avoid wasting the little time we have left to really change course.

2021 highlights
APRIL: In response to strong public opposition from the Saami Council, Swedish civil society and researchers, and allies around the world including ETC Group, the Swedish Space Corporation (SSC) decided to stop the Stratospheric Controlled Perturbation Experiment (SCoPEx) moving ahead with a planned solar geoengineering

balloon test flight. This hard won victory is the third time this type of experiment has been halted on Indigenous territory: it was previously attempted in New Mexico, and then in Arizona.

JUNE: We ran a high-profile livestream event of climate leaders challenging solar geoengineering, together with the Center for International Environmental Law (CIEL), Heinrich Boell Foundation, Indigenous Environmental Network, the Saami Council and What Next?, in collaboration with the Hands Off Mother Earth (HOME) Campaign and the Swedish SCoPEx Network and Researchers' Desk. This brought together leading scientists, indigenous leaders, youth and climate activists to collectively warn about the growing risks and unequal impacts of solar geoengineering. Thank you to Greta Thunberg, Michael Mann, Vandana Shiva, Raymond Pierrehumbert, Bill McKibben, Jennie Stephens, Naomi Klein, Tom Goldtooth and Åsa Larsson Blind for joining us to draw the world's attention to this critical issue.

OCTOBER/NOVEMBER: We challenged Big Oil's untested claim that geoengineering can help the world achieve 'Net Zero', which they promoted heavily in the run up to, during and after the UNFCCC COP26 climate change negotiations in Glasgow. For example, we strongly rejected the US and China's joint Glasgow Declaration on Enhancing Climate Action in the 2020s, which includes an intention to cooperate on the deployment and application of technologies such as carbon capture and storage (CCS) and direct air capture. We also co-hosted a press event in the COP26 'Blue Zone' and, together with allies, exposed "Why Big Polluters are Net Zero's Biggest Champion"; we also joined together with more than 700 Civil Society Organisations to demand "Real Solutions, not 'Net Zero'". In the second week of the summit we launched a fun social media competition with a serious message, encouraging people to be Doublespeak Detectives, looking out for other new terms that are as duplicitous as 'Net Zero' and 'Nature Based Solutions'.

COP26 resembled a trade fair for geoengineers, Big Ag and Big Data, and it officially concluded with little beyond flashy promises and dodgy trade initiatives. The UK Presidency allowed the fossil fuel sector to have more lobbyists attending than even the largest national delegations. Access to the meetings was deeply inequitable with many from the Global South restricted through vaccine apartheid, constantly changing and chaotic visa requirements, and the UK's hostile immigration environment.

Find out more:

- Listen to Silvia Ribeiro explaining what geoengineering is and why it's so dangerous in our new podcast "Volcanic Disruptions"
- Read more about the huge risks associated with solar geoengineering
- Check this short video on why Greta Thunberg, Vandana Shiva, Bill McKibben and others reject solar geoengineering (also in Spanish)
- Check out our four-page briefing on "Geoengineering and the 'net zero' con at COP26"
- Consult a range of fact sheets about proposed geoengineering techniques, available at Geoengineering Monitor and Monitor de Geoingeniería (the only Spanish source of critical information about each of these geoengineering proposals)
- Keep up to date by subscribing to www.geoengineeringmonitor.org

Confronting the 'bio-digital' takeover

- We focused on tracking and sharing information about the incredible rise of digital platforms and data-driven technologies across the food chain.
- We encouraged the sharing of experiences and knowledge about the digitalisation of agriculture in many spaces including the global Just Net Coalition, the Civil Society Mechanism (CSM) to the UN Committee on World Food Security (CFS), and the new North American Digital Agri-food Working Group (NADAWG).

Twenty years ago, ETC Group warned that the convergence of Biotech, Computing, Nanotech and Neural tech (AI) would drive an unprecedented techno-corporate takeover of the economy. What the World Economic Forum (WEF) calls "the fourth industrial revolution" is now in full swing with dire consequences for our communities, food systems and the web of life. After tracking the gene-giants and 'bio-massters' for 40 years, ETC Group is now working with allies to decode how tech titans, agribusiness giants and rich states are ushering in a new and problematic 'bio-digital' order which we need to resist.

'Tracking technology' is ETC's middle name (literally). As our ongoing scanning of the technological horizon continues, our attention has focused on the incredible rise of digital platforms and data-driven technologies across the food chain. Arising out of our research into agribusiness strategies for the next 25 years in "A Long Food Movement: Transforming Food Systems by 2045" (a report we launched this year, see pp6-7), ETC identified an urgent need to help our allies in the food sovereignty movement better understand and address the digital takeover of our food systems.

Throughout 2021 we hosted and gave presentations to several regional and international events, and to allied networks, exploring the digital threats to food systems. For example, together with allies at the online Convention on Biological Diversity's Open Ended Working Group negotiations, we were able to insert language directly into the Zero Draft of the proposed Post2020 Global Biodiversity Framework (GBF), with a view to embedding Technology Assessment in the GBF. We also shared our concerns in relation to Nature-based Solutions (NBS) and new protected areas and, in other agenda items, on synthetic biology, geoengineering and the need for horizon scanning. Some of these presentations are available online enabling friends and allies to get up to speed with these new developments (see links below).

We initiated or joined with several bottom-up regional dialogues with others in civil society processes to understand and assess the emerging digitalisation of food. Globally ETC partnered with the Just Net Coalition, a South-based network of digital justice activists, to convene an international dialogue on Food, Data and Justice (FDJ) that will interlink with other similar dialogue processes addressing the ways in which digitalisation is impacting health, education, labour, media, gender and more. We are also helping anchor a Working Group on Data for the Civil Society Mechanism (CSM) to the UN Committee on World Food Security, which responded to a key UN consultation on data for food security and nutrition.

In North America, ETC Group convened and hosted NADAWG – a new North American Digital Agri-food Working Group (NADAWG), bringing farmer, worker, environmental, Indigenous and other US and Canadian groups together to develop common analysis and public materials on the digitalisation of the food system.

In Asia-Pacific, ETC Group has created a new set of learning materials around new disruptive technologies, including an interactive map, a series of podcasts and six articles for a popular audience, which are being published by HBF-Hong Kong. As part of the TECLA network, ETC colleagues in Latin America participated in several capacity building events, to share information and critical analysis about the potential impacts of digital technologies on food sovereignty with LVC's regional organisation (CLOC) and its national members across the continent.

The significant data-led changes being pushed onto our food system tend to be intangible and complex, so we have started to complement formal presentations with other more engaging story-based communications. For example, "Jack and the Cloud Giant" is a different twist on an old European fairy tale that explores how agribusiness and data giants are extracting data from farmers, while "Big Brother comes to the Farm" explores the same themes in animation form (see pp16-17).

2021 highlights
FEBRUARY: Jim Thomas, ETC's Research Director took a deep dive into the questions around big data and the digitalisation of agriculture at a National Farmers Union of Canada class, sharing why drones, robotics, self-driving tractors and smart farms are just the tip of the iceberg.

MARCH: ETC Group's research found that 3– 5 million facemasks containing a nanoparticle material, nanographene, were being manufactured daily by SQ Group in China and then shipped worldwide for use in Europe, Australia, USA and South East Asia. These disposable masks (with grey-coloured lining material) are toxic and potentially dangerous to the wearer's lungs, and Canada's health agency issued an urgent order to ban their use and distribution. (For an overview of the risks of nano-graphene in face masks see this excellent Medium article by nanotoxicology expert Dr Andrew Maynard.)

APRIL/JUNE: Our Latin America Director Silvia Ribeiro published a book of her essays based on ETC's work over the last 15 years, when transgenic contamination was discovered in Mexico's native corn. The book elaborates the negative social and environmental impacts of transgenic seeds and goes on to contrast the role of corporate agro-industrial food – which has played a key role in the generation of pandemics such as Covid-19 – with the success of peasant networks, and rural and urban food producers, who collectively feed the majority of the world's population.

AUGUST: ETC Group's Jim Thomas and Soledad Vogliano participated in an international capacity building seminar with the Agricultural Board members of IUF-UITA presenting our analysis of the planned digitalisation of agriculture and its potential impact on employment for workers on rural plantations and food chain and delivery platform workers around the world.

OCTOBER: ETC Group, GRAIN and La Via Campesina hosted a workshop on "Food Sovereignty and the Digitalisation of Food Systems". This unpacked the concept of 'digitalisation' and explored how corporations are pursuing forms of digital agriculture in different parts of the world, undermining peasant-led agroecology and food sovereignty.

Find out more:
- Hear Jim Thomas set out some of ETC's concerns about big data and the digitalisation of agriculture in this Canadian National Farmers Union class 'Big Data. Big Questions'.
- Download a copy of Silvia Ribeiro's book, "Maiz, transgénicos y transnacionales" ("Maize, GMOs and Transnationals"), published with Editorial Itaca, and Heinrich Boell Foundation (HBF) Mexico and the Caribbean, and with artwork by Atziri Carranza (it's in Spanish, and it's free).
- Find out more about the digitalisation of agriculture from ETC Group, GRAIN and La Via Campesina by watching "Food Sovereignty and the Digitalisation of Food Systems".

Every picture tells a story

Our new creative communications strategy is changing the way we tell stories. In 2021 we put our new strategy into practice for the first time, launching a compelling animation and a fun-to-play but serious board game about corporate concentration and the digitalisation of agriculture. We also initiated a new Narrative Response process, working together with key allies to deconstruct the deceptive tall tales used to sell potentially damaging technologies.

During the year we experimented with different ways of communicating our key themes, to see if we can make them more engaging and accessible for a wider audience. In particular, we wanted to see what happens if we collaborate more extensively with artists. Can we reach beyond the constraints of language? Can we create more emotionally engaging and easy to understand popular communications about our often data-heavy techno-focused research?

Working with young visual illustrators and animators
Using visual arts especially, we feel we can engage, challenge, evoke reactions, raise questions and generally reach beyond the complexities of language. This deliberately experimental policy is now generating a growing kaleidoscope of artists' responses to our analysis and concerns – we already have a wonderful array of animations, beautifully illustrated reports, a game, podcasts and even a cautionary fairy tale (see p19 for links).

We found that working with early career artists and a new animation studio in Nairobi has been mutually beneficial for everyone, including creatives, supporters and allies. These collaborations have been enthusiastic 'everyone-pitches-in' affairs; hard work for all but a lot of fun, and the impact has exceeded our cautious expectations.

Disrupting industrial agriculture's narrative
Our new board game, "Disruption! A battle for the future of food", was one of our first forays into this creative sphere. We had planned to make the game for a while, but hadn't anticipated how complex game-making can be and accidentally made a gamers' game! So now there are two sets of rules, one for a short game and one for a longer one.

We really concentrated on our game's visuals. We took a risk by working with three artists with very different styles, with a view to using the resulting visual tension to underscore the deep conflict that exists between the Industrial Food Chain and the Peasant Food Web, whilst having a unifying game design. In the game corporate players and a peasant player compete to retain or grab food systems footholds, which relate to the economy, ecosystems, genetics and knowledge. In our longer game the peasant player can also orchestrate uprisings in which the dispossessed peasants regain control of their resources.

It was a complex project, with development, prototype, testing and final stages. It ultimately includes a double-sided board and 74 cards, which include 25 specially commissioned illustrations, multiple texts, tongue-in-cheek player icon designs, and two sets of rules – all of which need to work in different regions and different languages. The game is currently available in English and Spanish and underway in French.

Challenging 'Doublespeak'
We're also focusing on exposing the way in which deceptive 'Doublespeak' narratives are often used by techno-profiteers to disguise their true intentions, and we incorporated this aspect into our game as well, with a number of 'Doublespeak' cards giving examples of what certain Doublespeak terms really mean.

> *"I love the presentation, the material, the ideas, the concepts, the 'double-speak' cards which are very dauntless…For the first time I feel great losing a game, which is super weird and teaches a lot in itself about 'losers' and 'winners' in the real world of food systems."*
> Diana Valencia Duarte, Colombian engineer with an MSc in Food Security and Sustainable Agriculture

The themes and technologies explored within the game are a beautifully blunt yet effective means of communicating the ever-growing threats of food web takeover by large corporations.
Christian Vander, animator/game enthusiast, UK

Evolving and working in multiple regions, cultures and languages

ETC Group has changed considerably over the past four decades, and our communications aim to reflect those changes. Starting out as a North America-based NGO (Rural Advancement Foundation International or RAFI), we have since evolved into a small but global non-hierarchical collective of researchers and activists. This means the way we need to communicate with others and reach out is also critical, as we increasingly work in multiple regions, cultures and languages.

Our new animation, "Big Brother Comes to the Farm: the digital takeover of food", demonstrates this. It challenges the dominant industrial techno-fix narrative promoted by the 2021 Food Systems Summit and holds up food sovereignty and agroecology as an alternative. It reveals that giant agribusiness firms are now being joined by other equally powerful corporations from outside the food world, including giant asset management companies that most people have barely heard of (such as Blackrock) and data companies large and small looking to harvest data. This includes information about DNA in seeds, water and soil data on farms, data about moving commodities from field to factory to the dinner table, and grocery sales and consumer data.

"Big Brother Comes to The Farm" was launched in English, French, Spanish and Swahili, but interest in the film is growing and we have been gifted translations in Italian and Japanese by allies. Despite sporadic Covid-19 lockdowns we were glad to be able to also launch our animation at an in-person event in Nairobi in collaboration with the Alliance for Food Sovereignty in Africa and Freehand Studios (who created it). We also have plans to develop versions in Bahasa, Arabic, Hindi and Portuguese.

Nurturing narrative power

Throughout 2021 we helped people critique false narratives and find stronger ways to tell their stories as they resist corporate extractivism.

In March, we headed into the heart of World Storytelling Day by publishing an update on an old European fairy tale, "Jack and the Cloud Giant", in English, French, Spanish and Italian, beautifully illustrated by children's book illustrator Garth Laidlaw. In this witty reworking we follow a young, rather gullible peasant called Jack up a data-vine that leads into the greedy Data Cloud Giant's techno-castle. Here Jack finds out what happens when he plugs his farm data into the glittering apps on his iPad. Will those dazzling promises of precision agriculture come true? And how will Jack and his Mum save their farm? The story proved so popular we created it as a podcast too, available in English and Spanish (see links on p19).

Deconstructing and replacing corporate narratives

What makes some stories so powerful that they stay in the public consciousness, even when they're not true? In May, in partnership with the Center for Story-based Strategy and AfriTAPs, we hosted our first online workshops exploring narrative power, looking at how corporate narratives work and exploring new ways to strengthen and build social movement narratives. Participants from Kenya, Nigeria, South Africa, Uganda and Ghana joined for an English-language workshop and participants from the Democratic Republic of Congo, Côte d'Ivoire, Niger, Senegal and Burkina Faso joined for the French-language workshop.

> *"The AfriTAPS narrative workshop was one of the most transformative trainings I've been to. It's totally changed the way I think and look at things and has already led to a number of changes in our work at AFSA. One concrete example is a project with photojournalists to create images of African farmers that don't perpetuate the 'poor destitute victim' story but show farmers as proud and resilient. Our AFSA website will also be redesigned as a direct result of the workshop."*
> Kirubel Tadele, Alliance for Food Sovereignty in Africa (AFSA)

This led to further workshops with African journalists and enabled us to connect much more effectively with African press as well as African food sovereignty activists.

We continued building this new strand of our work throughout the rest of the year, collectively developing our own capacity and that of our allies to dig into the deceptive and dangerous stories that are being told by techno-profiteers, unpicking their fabricated narratives and assumptions underlying these tall tales, to reframe the same issues in a much more critical light.

Later in the year we brought together a new Narratives Response Team together with other allies, through which we were able to expose an initiative launched by the US and the UAE at UNFCCC COP26 in Glasgow called "AIM for Climate" set up to falsely pitch agribusiness and tech corporations as part of the solution to climate change. The corporate narrative is that they are climate change heroes – rather than the climate change villains they actually are. By critiquing this narrative very publicly at COP26 we successfully raised an important red flag (see pp6-7).

Our 2021 communications roll call

Communiqué: “Hijacking Food Systems: technofix takeover at the FSS”
Communiqué: English French Spanish
Spanish podcasts

Illustrated report and animation: “A Long Food Movement: Transforming Food Systems by 2045”
Report: English French Spanish
Animation: English French Spanish

Board game: “Disruption! A battle for the future of food”
English Spanish prototype

Animation: “Big Brother is Coming to the Farm: The digital takeover of food”
English French Italian (captions)
Japanese (captions) Spanish Swahili

Illustrated fairy tale: “Jack and the Cloud Giant”
English, French, Italian and Spanish all here

Podcast mini-series: “Spanner in the System”
Banana-drama
Volcanic Disruption
Life, the Pluriverse and Everything

Interactive infographic: “Nirvana or nightmare?
Asia-Pacific’s new wave of disruptive technologies” here