



TECLA: A brief history of how Latin Americans have assessed new technologies

The last years have seen a growing influence of corporations and private interests in new technologies. New technologies are being introduced into society without a real assessment of what they are, how they work, who is funding them and what their impacts may be. These two principal concerns inspired the coming together of several different groups in Latin America to form TECLA in 2016.

TECLA's full name ("Red de Evaluación Social de Tecnologías en América Latina") means "network for the social evaluation of new technologies in Latin America." The network brought together a range of individuals and groups across the continent to assess new and emerging technologies that may affect people and the environment.

The process leading up to the creation of TECLA began several years before 2016. Part of its formation relates to collaborations among organizations and communities working against GMOs. In Mexico, a broad network of peasants and civil society organizations converged with concerned scientists and agronomists in denouncing the impacts of transgenic corn; in Ecuador people formed a continental network against Transgenics (RALLT, Red por una América Latina Libre de Transgénicos) and in Paraguay and Argentina, glyphosate victims of soy monocultures met through their work to resist threats to their health and environment through a movement called "Fumigated Communities." These and other groups in Latin America were exploring the possibility of supporting each other's efforts.

ETC Group in Latin America often took part in these collaborations. In this context, ETC group shared information on other proposed risky techno-fixes beyond GMOs, such as nanotechnology, geoengineering and synthetic biology. This level of information-sharing was quite unique in Latin America; ETC Group began to free up information about new technologies that ordinarily circulated among academics and industry, making it available for everyone to access. This sharing opened the ground for civil society and popular movements to start a broader discussion of the implications of emerging technologies.

Mature technology or techno-fix?

TECLA distinguishes between **mature technologies**, the development of which has involved participatory and ecological impact assessments over a period of years or even centuries, and **impositions by industry** - with the collaboration or indifference of authorities - of quick technical 'fixes' (often called techno-fixes). A techno-fix is an attempt to provide a "solution" to a perceived problem by the means of technical solutions alone, without a broad-based assessment of what additional problems they might cause.

Through their involvement in TECLA, participants began to raise broader, overarching questions about what was common to campaigns active in the Latin America region. These included:

- What did the campaigns against transgenics have in common with other campaigns, eg against agrochemicals, in defence of water, against pollution, etc?
- What united urban with rural struggles?
- What did surveillance technologies have to do with people getting cancers?

TECLA participants who had raised questions about particular technologies began to work towards developing an overall critique of techno-fixes.

Rather than responding urgently to specific issues in silos, groups came together to identify issues related to the range of potentially-disastrous technologies that were being imposed in the Latin American region as a whole.

In addition to identifying common ground between various struggles, the groups that came together to form TECLA identified a major problem with international governance around new technologies. In particular, they found that the precautionary principle - a legal principle requiring the exercise of precaution when scientific knowledge about a new technology is uncertain and where there exists a threat of exposure to harm by the public - was being increasingly eroded.

Even among technology debates at the global level, industry, corporations and the private sector were lobbying successfully for their favoured techno-fixes to be put at the centre of global discourses. The influence of these lobby groups led to changes in the language used around the precautionary principle. Rather than direct, unequivocal language advocating for caution to be used with technologies that may not be safe, corporations succeeded in their attempts to dilute language with the result that policies of precaution would be deleted or

masked under the tricky language of “case-by-case,” which in practice allows industry to advance the deployment of technologies that have not been assessed.

Cognitive Justice and Popular Science

Over the last three decades academics and grassroots groups across Latin America have developed a powerful process of dialogue, which has a special focus on the rights of popular movements, indigenous peoples, peasant and urban communities. **Cognitive justice** was at the heart of this approach. The concept is rooted in the fundamental principle that knowledge systems other than those arising from western epistemology, should be recognised as valuable. TECLA enabled dialogues that were established on an equal basis with other knowledge systems. Scientists could participate in the critical evaluation of technologies along with indigenous people, young people, popular urban movements and others whose expertise comes from their own knowledge systems and life experiences.

TECLA’s emergence coincided with the development of this ongoing dialogue, enabling collaborations to form with critical scientists, physicians, mathematicians, molecular geneticists and linguists who were open to struggles on the ground. TECLA was therefore able to form alliances with diverse groups such as lawyers and health movements across the continent. For instance, in Argentina the health movement includes doctors, chemists, epidemiologists, and toxicologists that have a history of fighting for the rights of affected people on soy plantations in the South of Latin America, who had contracted cancer and suffered from high mortality rates. They were already working on assessing the agro industry, fumigations, soil contamination, and crop and animal health, and were involved in the tribunal against Monsanto. The movement was already practicing popular science, and it came to form an important part of the TECLA network.

Assessing Terminator Seeds: A Social Evaluation of Technology

The first of TECLA’s processes of technology assessment focused on the history of **terminator technology**, a controversial technology developed by publicly funded breeders at the US Department of Agriculture and Monsanto. The first patents for the technology were discovered by civil society groups in 1998. Also referred to as ‘suicide seeds,’ terminator technology was intended to genetically engineer plants to produce sterile seeds, preventing farmers from saving and reusing harvested seeds. It was never introduced: in the year 2000, it was struck down through a *de facto* moratorium, including on experimental releases, at the UN Convention on Biological Diversity. At that time, gene giants like Syngenta and Monsanto had patents on the technology and were keen on its introduction, with no evaluation by developers of the technology to assess its risks, or to consider its potential social and environmental impacts.

Civil society organizations (CSOs) and social movements filled in this void in risk assessment, undertaking their own assessment of terminator, and communicated its impacts to a wide public and to policymakers. Civil society groups concluded that terminator would restrict farmers' ability to produce food and would destroy their practices of seed-selection and seed-saving dating back 10 millennia. The campaign rapidly gained momentum. Soon, big agricultural institutions like the FAO (the Food and Agriculture Organization) and the CGIAR (Consortium of International Agricultural Research Centres) rejected the technology and a moratorium was put in place at the CBD in 2000.

The campaign against terminator was successful for many reasons, not least of which was the narrative and framing. The word "terminator" was coined by ETC Group and its allies in lieu of the technical definition of the technology by the CBD (first called TPS, Technology Protection System, and later, GURTS, Genetic Use Restriction Technology). With time, Monsanto itself came to call this technology 'terminator' – a word that illustrated the life destroying objective of the technology and the danger it posed to people's lives. The process of fighting down terminator was a combination of this concerted effort to shape narratives alongside lobbying at different levels including at international fora like the CBD; mobilizing farmers, indigenous peoples' organizations, social movements, scientists, and public plant breeders; creating materials about terminator that could be translated into several local languages, and importantly, getting the science right and striving for accuracy in the technical/legal assessments of the technology and patent claims. These efforts legitimized CSOs as sources of reliable information about the technology and its potential impacts.

Terminator turned out to be a typical example of a social technology assessment that had a direct impact on a technology that was of high importance for the industry, and which they wanted to introduce widely into the world. TECLA wrote the story, interviewed the protagonists and presented the process as a good case of social, participatory assessment of a disruptive technology. In 2018, TECLA published this case in a study called *Death Sciences: From Terminator to Gene Drives*. One of the aims of this document was to help people understand what technology assessment is; rather than seeing it as a person sitting at a desk and writing a report, TECLA's re-telling of the history of the Terminator controversy demonstrated how different people came together to assess, challenge and finally defeat a highly dangerous new technology through a range of strategies.

Assessing Stevia: A Reflection on Contrasting Perspectives

TECLA undertook a second process of technology assessment on **stevia**, a sweetener and sugar substitute native to Brazil and Paraguay, which has been used as a medicinal plant and commodity by the synthetic biology industry, without the consent of the indigenous people

who use it and on whose lands it is found. Among other impacts, the industrial use of stevia constitutes a case of biopiracy, alongside cultural appropriation, and it is an example on how new emerging technologies impact on society, farmers, communities. It added further evidence to that which had already been gathered about the negative effects of global free trade agreements on communities in Latin America. Peasant organizations that were part of TECLA wanted to discuss the impacts of the industrial use of stevia; TECLA provided a platform and an opportunity to assess its threats.

In 2017, the TECLA assembly decided to assess stevia in the form of a peoples' tribunal, but farmers from Paraguay who use stevia regularly thought that it was premature and chose a different methodology. The issue turned out to be more complex than expected and several diverse perspectives on the use of stevia came up. Some indigenous communities thought that one of the main challenges was to get companies to pay for benefit sharing, while others had a position against privatization as a whole. Another difference in perspectives arose between indigenous people from Paraguay who believe that stevia is sacred, and small farmers that while respecting this perspective, also see it as a plant that can be cultivated; many people in Paraguay use stevia and cannot find it if it is only collected in areas where it grows wild.

Indeed, in Paraguay, stevia has dozens of different uses, including as a healthy substance for the stomach and liver and as a remedy for diabetes. But Paraguay's indigenous people take offence to the idea that stevia be planted. To them it is a wild plant, part of their culture, and not a commodity to be farmed and sold in international markets. While agreeing that Stevia should not be treated as an international commodity, agroecological peasants in Paraguay consider that to plant, process and sell stevia in Paraguay provides a dignified source of income, provided that the process is guided by indigenous communities that know all about the plant. They see the planting of stevia as a political act of independence against the historical robbery of resources from the Latin American territories. From a completely different standpoint, in Africa, where the majority of stevia is grown for export, African small farmers are concerned about the competition of the synthetic biology stevia and the impact on their ability to sell stevia as a product in international markets.

TECLA finally decided to have a forum on stevia bringing together these contrasting perspectives. The Guaraní people gave their testimonies and learnt about the synthetic biology uses of stevia from researchers with an economic analysis, and also learnt about the perspectives of agroecological peasant perspectives. The technology assessment, which is still not yet complete, became a process of reflection about the different ways to assess this valuable plant.

TECLA Today and in the Future

TECLA's first meeting on new technologies took place in 2016, and regional TECLA meetings occurred subsequently. Today, TECLA has an international committee, an advisory committee of scientists and academics, and twelve member organizations from Mexico to Argentina, including peasant organizations, youth groups and urban movements. The network enjoys a degree of prestige as a result of having integrated delegates from the most relevant social and popular movements in the country, as well as prominent and well known critical scientists and academics in the region. This has enabled TECLA to leverage considerable support.

TECLA has identified four main areas of work. One is to develop a critical and dynamic epistemological definition of science and technology. The group introduced fundamental questions such as: What is technology? What is the difference between science and technology? Is it correct to say that technologies are neutral? TECLA provides a space where these questions are being explored and answered. The second is to monitor new technologies through a process commonly known as "**horizon scanning**." Much of this work is undertaken by ETC Group, which then informs the TECLA network. The third area of work is to map who is doing what on technology and technology evaluation, including on issues like nuclear power, dams, and others. The final area of work is to monitor and inform civil society about developments in governance at the national, regional and international level, such as the Science, Technology and Innovation Forums of the United Nations.

TECLA remains active by staying connected to its members and networks and having regular events throughout the year; In November 2019, the network will have a conference and a third assembly, along with public seminars focused on issues such as digital technologies and their impacts in Latin America, the impact of digitalization on labor and other social, environmental and economic aspects, and the energy costs of cyber-capitalism.

Some challenges still remain. One of them is for members to take genuine ownership of TECLA. However, many groups have taken more ownership since 2018, after the 2nd TECLA assembly. The challenge of keeping TECLA together in the absence of consistent funding and paid staff is ongoing. Another challenge for TECLA has been to connect with non-Spanish speaking groups in Latin America and globally: the network has thus far produced materials solely in Spanish, separating it from the Caribbean countries as well as Anglophone and Francophone networks. In the time during which it has been active, TECLA has enabled people to start developing critical reflections about technology and science, while still working on the issues they are already campaigning on. In the long term, TECLA plans to have a stronger secretariat and to carry out another technology assessment on technology and water, and on digital technologies.

January 2020