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This edition of GISWatch came into being alongside a brand new baby boy. Welcome to the world, Ronan Diga!

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Feminist infrastructure and community networks: An opportunity to rethink our connections from the bottom up, seeking diversity and autonomy

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Introduction

In this report we intend to examine three experiences with community and autonomous networks – by focusing on relationships that are established between diverse women and non-hegemonic groups and considering the overlapping of discriminatory systems that can be experienced based on sex, gender, race, ethnicity, class and other axes in an intersectional perspective.¹ These groups have been engaged in developing and crafting new communication tools and infrastructures in their local communities. We want to share our view as researchers and activists that networks constitute an array of relations that go beyond the mere act of sharing and distributing access to a particular kind of technology, including when communities reclaim the use of electromagnetic spectrum, building radio and mesh networks.

From a feminist perspective on technology and infrastructure, we briefly discuss our assumptions in this field considering that technology is neither neutral nor deterministic. The operation of a community network implies relationships between a multiplicity of individuals and social groups with different perspectives, interests and needs, and who are not affected in the same way by socio-technical systems given existing inequalities such as race, class, nationality and gender. This means that technology

initiatives and the way that they are framed can produce inequalities and differences that emphasise the political structuring of the social world emerging under the impact of the material internet infrastructure. Community networks also show that technology is a terrain of struggle on which hegemonic forces express themselves through specific design strategies in opposition to non-hegemonic groups that are nevertheless more or less successful in influencing the future form of the network infrastructure with which they are engaged.

Whenever voices, experiences and realities of people with little or no access to the internet are homogenised under the category of “unconnected”, their visions, aspirations and creative potential are invisible. Since a feminist perspective plays with different modes of being, it may help to question the basis of knowledge and subject positions that were/are seen in one-dimensional binary opposition in communities, and help to note the contradictions, tensions and ambivalence that characterise different communities, groups and subjects in technology initiatives.

On this basis, we present ongoing experiences in Brazil – *Rede Base Comum*, *Fuxico* and *Radia Pankaru* – all autonomous networks that are challenging androcentrism and new forms of colonialism or exploitation at the very local level. We also advocate that alliances between multiple groups can be expanded and technologies can be re-appropriated respecting local specificities and the different means by which communities articulate their experiences, without placing technical expertise above all other kinds of knowledge.

A claim for heterogeneity

There is a common tendency among “experts” to use the term “last billion” to homogenise those who lack internet and mobile phone access. Such narratives imagine technology as moving not only “from the West to the rest”, but from the urban to the rural, from the cosmopolitan to the local, and from the globally networked to the remotely disconnected. Under such a framing the notion that culturally and geographically peripheral sites are in definitive need of “magical” solutions is implied.

¹ Kimberlé Williams Crenshaw conceptualised intersectionality to denote the various ways in which race and gender interact to shape the multiple dimensions of black women’s employment experiences. Although her theory has aroused controversy, Crenshaw helped to make visible some of the dynamics of structural intersectionality and pointed out that people and groups experience the overlapping of discriminatory systems. She also pointed out the limits in identity politics, affirming that its problem “is not that it fails to transcend difference, as some critics charge, but rather the opposite – that it frequently conflates or ignores intra group differences.” For more information, see: <https://www.racialequitytools.org/resourcefiles/mapping-margins.pdf>

This particular view can emerge even in activism or free software and open technology environments, where hegemonic narratives on networks are often naturalised and presented as universal to the detriment of already existing experiences and local ways of bonding. In this broader context, it is important to think over the risk of using the term “community” as a simple label that not only overshadows the recognition of local technologies and network alternatives, but also reinforces the lack of respect for the voices of those silenced within a collective experience. In order to avoid this risk, we understand it is necessary to consider multiple voices and internal inequalities in community-based projects, which should impact on methods, time planning and especially on the dynamics of project implementation.

The lack of consideration of these aspects often makes the evaluation of the achievements of a community network difficult, or even leads us to measure its success mainly by the number of nodes it connects. In this sense, the pressure for scaling up community networks may, for example, run over latent conflicts on gender-related aspects and undermine efforts to break down hierarchical authority structures where difference between classes, ethnic groups, races and experts and non-experts becomes inequality. It may also reduce the time required to mature social ties and make a community network more bold and diverse. In addition, there is a risk of internet access provision and network stabilisation being considered the primary concern, without any consideration regarding the power disputes over its standards, protocols, software and infrastructure design.² In many cases, connection is seen as the most important goal to be achieved in a whole project, instead of one among many others, neglecting discussions and proposals that could be carried out from more intersectional perspectives.

At the end of the day, we often face the absence of actions designed to actively make these spaces (physical or digital) more welcoming and safe for women – for example, the creation of daycare facilities in spaces of infrastructure design and deployment; the implementation of affirmative action to build more representative and less power-concentrated network and community management structures; a collective agreement on an anti-harassment and non-discriminatory policy; or even the awareness of the potential need to remove intimate content disclosed without consent or misogynist content from community servers. All this is revealing

of how even collective initiatives sometimes are designed in such a generalised way that they dismiss the potential offered by an intersectional framework with all its complexity, mobility, and untiring political possibilities, and with no consideration for structural violence and discrimination.

It is not surprising that some initiatives thought up by white, cis,³ non-poor men, who are disproportionately represented in many decision-making spaces, are loaded with assumptions and ideological baggage, and do not contemplate issues such as those mentioned above, even in the field of open and free/libre technologies, when those needs are not part of their universe and daily life. Furthermore, the choices that were made considering this certain group’s needs and concerns – which will not be the same for all the participants in any network – are often not presented as one of the possible alternatives, but are hidden under an appearance of “ready-made solutions”. This kind of experience can reinforce not only the naturalisation of inequalities, but also, as pointed out in various feminist literatures,⁴ reinforce a colonialist and problematic heritage through the universalisation of a particular and privileged condition (and the choice of a privileged narrative, which like its formulator is seen as universal and, therefore, capable of dealing with all inequalities at once).

Considering this assumption, the discussions aimed at making collective spaces and infrastructure designs more “on the ground”, welcoming and supportive to different people and their values and practices, are many times perceived as a waste of time or a secondary item on the implementation agenda. All this may foster the feeling that certain spaces are not supposed to be occupied by women, or that certain kinds of knowledge cannot be considered technologies, or even the notion that external experts

2 Vicentin, D. J. (2017). *Internet Governance, Infrastructure and Resistance*. lavits.org/wp-content/uploads/2017/08/P8_Vicentin.pdf

3 According to the LGBTI+ Communication Manual, “cis” (or cisgender) is the term used to describe people who are not transgender. It refers to individuals who identify themselves, in all aspects, with the gender attributed to them at birth. See: <https://agenciapatriciagalvao.org.br/wp-content/uploads/2018/07/manual-comunicacao-LGBTI.pdf>

4 Some references regarding this discussion are: Harding, S. (1998). *¿Existe un método feminista?* In E. Bartra (Ed.), *Debates en torno a una metodología feminista*. Mexico City: Universidad Autónoma Metropolitana-Unidad Xochimilco; Haraway, D. (1995). *Saberes localizados: a questão da ciência para o feminismo e o privilégio da perspectiva parcial*. *Cadernos Pagu*, 5, 7-41; Rago, M. (1998). *Epistemologia Feminista, Gênero e História*. In J. Pedro & M. Grossi (Eds.), *Masculino, Feminino, Plural*. Florianópolis: Ed. Mulheres; Ribeiro, D. (2017). *O que é lugar de fala?* Belo Horizonte: Letramento; Sardenberg, C. (2002). *Da Crítica Feminista à Ciência a uma Ciência Feminista?* In A. A. Costa & C. Sardenberg (Eds.), *Feminismo, Ciência e Tecnologia*. Salvador: Rede Feminista Norte e Nordeste de Estudos e Pesquisa sobre Mulher e Relações de Gênero (REDOR), Núcleo de Estudos Interdisciplinares sobre a Mulher (NEIM), Universidade Federal da Bahia.

will always have better answers to community problems than the community members themselves.

The Brazilian experiences we will address exemplify how the presence and active participation of diverse women, including indigenous women, LGBTIQ people, community leaders living in the periphery of urban centres and in rural villages, feminists, tech activists and NGO participants, impact on the organisation of practices, activities and spaces of power where they are mostly thought of as hegemonic subjects.

In our examples:

- The experiences involve diverse women in the formation of infrastructures and networks, therefore encompassing both gender and technology issues.
- Participants believe in the importance of building both online and offline local networks.
- Participants see as problematic ready-made and easily presented solutions (with English often the embedded language of instruction and implementation), as well as hierarchical knowledge arrangements, pointing out that experiences with any kind of technology should be designed to value local expertise, support learning processes, seek diversity and dialogue with the local context and, through doing this, entrench participants' autonomy.
- The experiences help us rethink our methods and practices, disrupting naturalised assumptions that are built upon the invisibility of different groups and traditional knowledges,⁵ which have been supporting community organisation and sustainability concurrently with or even before digital technological knowledge.

The purpose here is not to present these experiences as a solution to the diversity problem, but to reflect on how they break down the invisibility of both local infrastructure relations and social inequalities,⁶ highlighting local knowledges and practices and proposing new social alliances. We believe these experiences can help us to move towards the decolonisation of our technological imaginary. In this regard, we understand technology in a broader perspective. As one co-author of

this report once defined it: “[B]eing, living, loving, suffering, resisting, organising, cooking... all are ancestral forms of technology,” and the infrastructures are “the elements that make technologies operate so powerfully.”⁷

We also share Sophie Toupin and Alexandra Hache's perception that:

One of the main constitutive elements of feminist autonomous infrastructures lies in the concept of self-organisation already practised by many social movements that understand the question of autonomy as a desire for freedom, self-valorisation and mutual aid. In addition, we understand the term technological infrastructure in an expansive way, encompassing hardware, software and applications, but also participatory design, safe spaces and social solidarities.⁸

Rede Base Comum, a local network to act on our living areas

Rede Base Comum (Common Base Network in a free translation from Portuguese) is an urban community network in the district of Jardim São Luiz, located in the south of São Paulo. It is a local mesh network currently managed by the NGO Casa dos Meninos.⁹ Although this is not a feminist network by definition nor a collective that organises itself from a gender perspective, it was the women from the community that managed the entire process of its implementation and are now in charge of its maintenance.

The network was born in 2010 with the objective of creating a common space for residents to gather and learn from knowledge exchanges and to share local resources. It was also designed to improve the territory's¹⁰ appropriation of technology while creat-

5 Although incorrect from a strictly grammatical viewpoint, the plural form “knowledges” is used to emphasise the fact that there are multiple kinds of knowledge.

6 Oliveira, D. (2017). Community networks and invisibility regimes of infrastructures and bodies. Paper presented at LAVITS International Symposium “Vigilância, Democracia y Privacidad en América Latina: Vulnerabilidades y resistencias”, Santiago, Chile, 29 November-1 December. lavits.org/wp-content/uploads/2018/04/40-Déborá-Prado-de-Oliveira.pdf

7 Zanolli, B. (2017). Podcast: Feminist spectrum and infrastructure. [GenderIT.org](http://www.genderit.org/node/5029). <http://www.genderit.org/node/5029>

8 Toupin S., & Hache, A. (2015). Feminist autonomous infrastructures. In A. Finlay (Ed.), *Global Information Society Watch 2015: Sexual rights and the internet*. APC and Hivos. <https://www.giswatch.org/en/internet-rights/feminist-autonomous-infrastructures>

9 Casa dos Meninos is a social organisation founded in 1962. Since 1999, it has carried out social, educational and cultural activities and programmes, using geo-referencing technology and web development. The NGO's target audience is young people aged 13-29 years old and adults aged 40-75 years old, all residents of the neighbourhood of Jardim São Luiz, in the district of M'Boi Mirim, located in the southern outskirts of the city of São Paulo.

10 We understand territory as in Milton Santos' work: “The territory is the ground and the population, that is, an identity, the fact and the feeling of belonging to what belongs to us. Territory is the basis of labour activities, of residence, of material and spiritual exchanges, and of life, upon which it also has influence. When talking about territory one must, therefore, understand that we are speaking about territory used by a population.” See Santos, M. (2003). *Por outra globalização: do pensamento único à consciência universal*. Rio de Janeiro: Record.

ing a sense of community in a densely populated city. Inspired by the ideas of Brazilian geographer Milton Santos, the physical local network is seen as an experience that can help locals amplify the impact of political action in their residential areas, redefining the composition of their immediate territory into smaller, delimited areas where residents circulate, interact and modify collective spaces, such as schools, health units, local markets and others. The network was also built with the prospect of creating a new culture, based on collaboration, solidarity and local exchange practices,¹¹ challenging the pre-established culture of individualism and competition in our society.

It is noteworthy that the mesh network set up by Rede Base Comum was preceded in an “analogical way” by a community network in the territory created when residents mobilised for the “Daycare Centres for All” protests in 2008. Back then, we organised field work to gather information on the lack of daycare facilities in São Paulo, combined with geo-referencing tools, which showed the community, especially mothers, that a large number of children without daycare access in São Paulo were from their area.

The lack of daycare facilities in São Paulo could give one a feeling of impotence: official numbers indicated more than 100,000 children without daycare in the city at that time. Nonetheless, the geo-referenced information unified the mothers and helped them organise and intervene with a more concrete demand. As a result, the data collected in the field work enabled a local movement that resulted in two new daycare units in the neighbourhood, inaugurated in 2011 and 2013.

Social mobilisation coordinated by the community preceded the organisation of a local digital network, helping us to think of a mesh network as a way of supporting important interactions already existing between residents and relating to their reality and local needs. In this process, a series of meetings and discussions were carried out to define the operation and maintenance of the network structure. In a demonstration on how technology can support a non-hegemonic vision, it was decided that in order to maximise autonomy, the network should be managed by the community itself, including when it came to defining internal policy and content issues. Here when we talk about the “community”, we are also talking about ourselves, and

women who live in the neighbourhood and were already bonded in “offline” social networks.

Nevertheless, when our group of women looked for network infrastructure experiences and technical expertise, we faced an unwelcoming scenario: the complete absence of training spaces on information and communications technologies (ICTs) in our own neighbourhood, including for-profit technical schools – which led us to conclude that not every area in the city is seen as a place of interest regarding technological expertise. Clearly, this lack of opportunities is a reflection of social and geographical tensions that underline internet infrastructures – the place where people live and their social class resonate in the level of their access to information and knowledge.

As a consequence, the team that today manages the network sought partnerships with other groups involved in digital culture. However, even in the free/libre and open technologies activist field, our first impression was that this space did not belong to us, as we faced a predominance of white males and only a few women working with infrastructure and free networks. Furthermore, these partnerships were sometimes focused on teaching particular content or techniques in a short period of time – a dynamic in which there was little space to connect all that “external” expertise to local aspects.

One of these partnerships, however, occurred differently. During a course on community networks designed for women organised in 2017 by Vedetas – who had set up a feminist server intended to support feminist groups in their online activities, to increase women’s security and autonomy and to build feminist technologies¹² – we discovered that feminist practices could influence learning and knowledge production. Once we managed to find out about spaces where diverse women were involved with the construction and modification of network infrastructure, we could observe the differences in the teaching methods and in the environment, and realised we should take into consideration what we were producing and thinking for Rede Base Comum in order to meet our needs when building our own infrastructure.

One aspect that drew our attention was that the partners who work with feminist infrastructures consider the reality of “on the ground” practices of the local population when introducing digital tools. In other groups that we had contact with, it was always stated as an imperative and general truth that it was important to use free software in community networks, for example. We know the political

¹¹ With the network we want to use and develop applications and webpages that allow the community to share local resources, from the exchange of local knowledge, texts and audiovisual content to open channels for the promotion and organisation of shared physical items among the local population, such as books and building materials.

¹² <https://vedetas.org>

importance of its use; however, we cannot always act in ideal conditions and in this case specifically most of the residents in our territory were still more familiar with the use of proprietary software than with free software interfaces. In their very first contact, a digital environment that was too different could divert people from the use of the local network.

In the feminist infrastructure workshops we participated in, partners presented the use of both proprietary and free tools in parallel, which helped us to understand in practice the differences that make the use of free software so important. This simultaneous use served as a period of adaptation to a free software environment. This has helped us to adapt the workshops we have conducted in Rede Base Comum, in which we apply a similar methodology, introducing free tools in a more practical, gradual way and looking at their differences in relation to the proprietary software. As a result, digital tools were presented as a popular resource and not a tool designed by and for experts.

Another difficulty we had was in relation to the application of ready-made solutions. In some partnerships with digital culture groups there was an insistence on using already developed tools and “plug-and-play” solutions in our network. We know that this is the result of a positive intention and effort to “facilitate” the life of those who are starting their projects with community networks, but in addition to using platforms and tools already developed elsewhere, we have always affirmed that it would be important for us to learn how to develop some of our own tools. We had long conversations with some partners in this regard, but they did not understand our need to appropriate this knowledge. Feminist groups had a better understanding of this need, as the importance of autonomy is a prominent part of their discussions. Today we are designing workshops and training projects which aim to have women programmers and developers in our own group and territory building some applications for our network locally. We consider this to be one of the main priorities in the organisation of our time, resources and projects, even if this means slowing down the expansion of our network to neighbourhood areas.

Fuxico: Weaving connections beyond the internet

Fuxico¹³ is an autonomous and portable device made by Brazilian women to connect people who are present in the same physical space in order to promote content, exchange experiences, and foster

collaboration. It creates a wireless network – disconnected from the internet – with the objective of sharing digital content in real time and in a completely anonymous way.

Motivated by the desire to explore the theme of autonomous feminist networks, in 2017 a group of four female hackers from Brazil and Mexico coming from different feminist social infrastructure and technology initiatives – Kéfir,¹⁴ Perifericas¹⁵ and Vedetas – met at the AWID international forum.¹⁶ This participation resulted in a one-year project with the purpose of exploring what was mapped as four points of tension in feminist infrastructures: “consent and intimacy”, “situated knowledge and memory”, “seeded connectedness” and “autonomous decision making”.¹⁷

Through this project we worked with 230 women¹⁸ from events and workshops we facilitated in São Paulo and Salvador, and also agriculturists from Vale do Ribeira and rural artists at EncontraADA,¹⁹ a self-organised event carried out in the São Paulo countryside. The work itself had very diverse approaches, such as setting up temporary prototypes of autonomous mesh networks in events, to presentations, talks and longer courses on the subject of autonomous infrastructures.

During the project we realised that merely a theoretical presentation about the theme or practice

14 <https://kefir.red>

15 www.perifericas.com.br

16 AWID is an international, feminist, membership organisation committed to achieving gender equality, sustainable development and women's human rights. <https://www.awid.org>

17 These women hackers also explored the points of tension in feminist autonomous infrastructures at the 2017 Internet Freedom Festival. See the event's wiki at: https://internetfreedomfestival.org/wiki/index.php/Getting_gender_inclusive_from_the_ground_to_the_cloud and the podcast “Feminist autonomous infrastructure: Technomagic fires to warm your hearts” at [GenderIT.org](https://www.genderit.org/node/4921): <https://www.genderit.org/node/4921>

18 At the first meeting, held in 2017, it was possible to see that there is diversity among the participants: there are women of different ages, most of them between 20 and 40 years old (there are no elderly women); there is racial diversity, especially among whites and blacks, and there are Brazilians with Asian ancestry who work with Asian feminism. People also come from different areas of activity: graffiti artists, designers, lawyers, digital marketing communicators, journalists, physicists, high school students, academic researchers, and feminist activists from different groups. They also come from different places in Brazil: there are women from the city of São Paulo, from the interior of the state of São Paulo, from Pará, Bahia, Pernambuco – although most are living in São Paulo at the moment, even if temporarily. Some are mothers, some not; there are cis and trans women, queer and non-binary people, heterosexuals, bisexuals and lesbians. The concern with diversity is expressed not only in the composition of the participants, but in the organisation's efforts to try to anticipate demands to ensure that the space is really welcoming for different women. Before the course starts, for example, the organisation surveys the participants via email or telephone to map out demands for daycare, food aid and transportation, and accessibility for people with disabilities.

19 <https://encontrada.hotglue.me/?historico>

13 redeautonomafeminista.org/fuxico

with routers and antennas was not enough to deepen the discussion about the possibilities of women using and sharing local services. In some of the field experiences, the very idea of digital communication was thought of as only being about the internet, something that this initiative sought to deconstruct.²⁰

We then decided to take a concrete example, choose some technology that the participants could touch and experience, but that was not an original ready-made solution or an imported tool. Being an external solution – as mentioned, in English by default – and with little regionalisation in the “user experience” design and objectives, this imposition without establishing any dialogue with participants on the local context and on their understandings about technology usually acts against community and individual autonomy in our experience. Even free software with its solid goals of supporting civil society and the free democratic access to knowledge, like MediaWiki²¹ or PirateBox,²² if applied in an unchanged and unreflective way to any context, would appear as a foreign technology and only intensify the distance women feel in anything related to technology.

Therefore, we chose to work with a heavily customised version of PirateBox, a 2011 free software project defined as a “DIY [do-it-yourself] anonymous offline file-sharing and communications system built with free software and inexpensive off-the-shelf hardware”.²³ PirateBox is an operating system for Raspberry Pi,²⁴ which creates a wireless network – not connected to the internet – to exchange digital content such as images, videos, audios, documents and conversations, prioritising anonymity.

Initially the interface was translated into Portuguese and the pirate’s visual identity that is part of the product was replaced by an image that served as a locally meaningful analogy. The intention was to give meaning to the experience by bringing elements that were part of the women’s daily life: for farmers, we used the idea of “seeding” – a space for exchanging indigenous seeds, where the content exchanged could, by analogy, multiply as “Creole

seed”.²⁵ For women on the outskirts of Bahia state, we used the name of a little flower called *fuxico*,²⁶ which is an image used in a very common craft technique from the interior of the Brazilian Northeast that is more than 150 years old. By using pieces of fabric left over from sewing, the women create individual pieces that look like fuxico. They then sew numerous fuxicos together, producing clothes, decorations, tablecloths and bed covers. We called this localised solution “Fuxico”, alluding to other techniques developed by Brazilian women.

These analogies seek not only to create a sense of belonging in the participant experience, but to give a new significance to what we understand by technology. Women often do not see technology as a “female thing” and all things considered, “feminine”, in our culture, is often classified as anything but technology. One of our goals as feminist hackers is to change this correlation and question the politics of such classifications and the scale of power they represent. As the neuroscientist and artist Christine Liu claims: “Knitting is programming. Sewing is engineering. Baking is chemistry. Women have been STEM [science, technology, engineering and mathematics] pioneers longer than they’ve received credit for.”²⁷

The use of metaphors and analogies expressed here reflect the view of Diana Maffia²⁸ who, in formulating her critique of the hegemonic sciences, reveals that the production of “truths” is based on false notions of objectivity and neutrality, which require the use of literal language and the exclusion of emotion. In doing so, metaphors, far from having value for knowledge, create obstacles to meaning. What was experienced with these women is exactly the opposite: the metaphors are valued and build bridges – often they are perfected by the participants, who also formulate their own comparisons to test the knowledge learned. The truth here appears, therefore, in the sense proposed by Maffia, that what is legitimated by different perspectives will be

20 There are, for example, other forms of digital communication that we call attention to in our collective, such as digital television and radio and intranets.

21 <https://www.mediawiki.org/wiki/MediaWiki>

22 <https://piratebox.cc>

23 *Ibid.*

24 According to the Raspberry Pi Foundation, the Raspberry Pi is an affordable and capable little computer, which can be used in electronics projects and for many of the things that a desktop PC does. <https://www.raspberrypi.org>

25 The manual of feminist practices produced in 2018 by SOF – a Brazilian feminist organisation – says: “Creole seeds are those grown and maintained by traditional peoples and communities throughout generations, perpetuating the natural wealth of our lands. Through agro-ecological crops and seed exchanges, they remain alive.” This is an activity of resistance in a country where the agribusiness industry poses a threat to traditional ways of tending the soil and Brazilian people’s health as a whole. For more information, see: <https://www.hrw.org/pt/news/2018/07/20/320493>

26 For some examples of fuxico, see: <https://www.artesanatopassoapassoja.com.br/artesanatos-com-fuxico-passo-passo>

27 <https://twitter.com/christineluuart/status/856729454013366272>

28 Maffia, D. (2005). Epistemología Feminista: por una inclusión de lo femenino en la ciencia. In N. B. Graf & J. Flores (Eds.), *Ciencia, tecnología y género en Iberoamérica*. México DF: Universidad Autónoma de México/Plaza y Valdés.

true (in this case, from the perspective of the women who attended the activities) – it creates meaning that is not finished, but which can be renegotiated. The Fuxico project is a collective reflection on the expressions and wishes of Brazilian women and was designed to connect people present in the same physical space, such as feminist events and collective venues – but not limited to them. In addition to the original PirateBox features adapted to this context, Fuxico includes by default educational content about feminism, autonomy, technology and stories about women. The device also includes a manual on feminist digital security techniques and practices – since any digital experience that seeks to include women and other social minorities must consider that discriminatory violence is structural and could always occur in both online and offline spaces.

The original PirateBox project, as many free software projects do, focuses a lot on trust, anonymity and the absence of control or censorship mechanisms. As feminists we worry that the lack of built-in functionalities to delete content that proves to be violent or harassing is a flaw that will distance women and other social minorities in fear of online violence. In the context of digital territories as facets of real-life territories, cryptography and the possibility of adding security layers to specific spaces and files, and the ability to choose who you want to share content with, is a form of resistance. The guide²⁹ we share by default includes information on holistic tactics and alternative digital security software that the users should familiarise themselves with, but in the future we wish to add media governance and cryptography features built into the Fuxico interface.

In retrospect, this project encouraged us to work on the issue of autonomous networks from a different perspective. The aspects that unite and create networks, as well as common narratives and experiences, were more important than the range a certain kind of technology had. Rather

than thinking about the extension and quantity of nodes, we reverse engineered that logic by working in the smallest as possible sphere: a single router – a single box with the potential to bring together narratives, ideas, knowledge and desires. Once this common territory is established, the intention of the project is to encourage women to gradually expand these connections, adding routers and antennas as far as it will make sense for them.

Rádia Mulheres Pankararu

The indigenous territory of Pankararu is located in the backwoods of the state of Pernambuco, in the Northeast region of Brazil. The population that lives in the territory is approximately 7,200 and although their land was demarcated in 1942 they still fight against outsiders to make them leave the territory and to have their land rights ensured.³⁰

Rádia Mulheres Pankararu (which means Pankararu Women's Radia)³¹ was started in January 2018 and was the result of the effort of many women, but mostly the women associated with AMIGP (*Associação Mulheres Indígenas Guerreiras Pankararu*, which means Pankararu Indigenous Women Warriors' Association), a couple of radio lovers,³² and Thydewá,³³ a partner NGO. The initial idea was to organise a workshop on basic electronics with women, supported by Fundo ELAS, a local fund for women's rights.³⁴ However, after talking with them we discovered that they had an old dream of having a local low-power FM (LPFM) radio station. So we arranged for experimental low-power equipment and provided workshops on basic maintenance and audio content production using free/libre and open source software (FLOSS).

The signal reaches almost the whole indigenous territory and the radia is open for women's participation only (they are still thinking about how men can participate without taking the action out of women's hands). Before the radia, the only two FM radio stations that could be heard in the territory were commercial stations from cities located in

29 The publication, called the *Practical Guide to Strategies and Tactics for Feminist Digital Security*, aims to provide women with greater autonomy and security on the internet by presenting strategies and tactics of digital defence for feminists. The content is directed to women in Latin America and was developed considering different women: blacks, trans, lesbians, organised activist movements of women or those who act individually in the network, whether from urban areas or rural peripheries, and with different levels of access to technology. Each subject is connected to real cases of online violence and has practical information on how to deal with adversity in similar scenarios and understand where to focus on security efforts. The second part of the guide is devoted to the use of mobile phones and how to have a safer device. There is also information on what to do on social networks to counter hate speech and the unwanted spreading of intimate content. The guide is available in Portuguese at: <https://feminismo.org.br/guia-pratica-de-estrategias-e-taticas-para-a-seguranca-digital-feminista>

30 More information on the land conflicts faced by the Pankararu can be found in the following articles in Portuguese: <https://jornalistaslivres.org/povo-pankararu-luta-para-concretizar-demarcacao>, <https://jornalistaslivres.org/pankararu-segum-na-luta-para-ocupar-seu-territorio>.

31 We use the term radia with an "a" instead of radio with an "o", reflecting the feminine vs. masculine word ending typical of Portuguese, because the sexism in our language is an important issue and has an impact on how infrastructure and machines are perceived as a male field.

32 Luiza Cilente as the coordinator of the project and Bruna Zanolli as radio and studio technician.

33 www.thydewa.org; see also the project *Pelas Mulheres Indígenas* (For Indigenous Women): www.mulheresindigenas.org

34 www.fundosocialelas.org



Source: Associação de Mulheres Indígenas Guerreiras Pankararu - Pernambuco, Brazil

the surroundings. The day after the radia did its first broadcast, there were people knocking on the door of one of the women's homes at 7 a.m. asking what time it was going back on air!

AMIGP is an association of women that fights against domestic and sexual violence and advocates for sexual and reproductive rights for indigenous women. The association is mostly comprised of indigenous teachers and local articulators,³⁵ as well as homemakers and students. They renovated a small room at the back of the association's headquarters, where the radia is currently located. In May, another project came to the space, providing a FLOSS laboratory for young women.

Although the radia project is still new and it is hard to measure its achievements regarding social change, it is undeniable that the community was strengthened by the LPFM radia and its voice was amplified. We believe that the radia, where content production is shared, strengthens community bonds and helps with collective thinking. Because of this, the dynamics of an LPFM radio are more collective than the use of the internet on individual devices, and can be an ally when we think of the sustainability of collective relations, representing a broader view on community networks and autonomous infrastructure. We believe that an LPFM radio is, in this context, a form of community network, meaning that it provides a way of communication and exchanging thoughts and ideas. The internet connection in the indigenous territory is restricted (there is satellite only, and it is expensive and not reliable), so having a local radio station was a specific

choice that was made considering the low budget of the project. At the same time, the communication problems to be addressed in the Pankararu community were better attended to by broadcasting, being able to amplify the voices of the community leaders who are fighting for indigenous women's rights

Additionally, an LPFM radia entirely led by indigenous women is unprecedented in Brazil, a country that struggles with concentrated management and patriarchal laws when it comes to radio spectrum. The concentration of radio spectrum use in Brazil is a historical issue and, although there is a law regulating licences for community radio networks, it is very difficult to get a concession due to bureaucracy. Sadly, the technical restrictions imposed by the concessions also end up lowering the potential of setting up a community radio initiative. The present law establishes that only one frequency is available for community radios to use nationally – and this remains the case regardless of the size of the city and its population. This is also limited to 25W of power or a maximum 1 km of range, which is really low, especially considering big cities with tall buildings and rural areas that are vast.³⁶ There is also a need for a legal entity to apply for a concession, and due to the fact that there is only one frequency available, communities within the same range of 4 km become competitors for the same concession.

There are many other examples of how the hindrances imposed on community radio in Brazil

35 A local articulator is a person who has a communication role in the community and is politically active at a local level. It is a common term in Portuguese.

36 Changes in the law are currently being discussed, but the changes, although significant, fall far short of addressing the real demands in the field. For example, the power allotment would go up to 150W and it would be possible to have two frequencies per municipality. More information can be found (in Portuguese) at: <https://www12.senado.leg.br/noticias/materias/2018/07/10/aprovado-projeto-que-aumenta-potencia-das-radios-comunitarias>



Source: Associação de Mulheres Indígenas Guerreiras Pankararu - Pernambuco, Brazil

impact on communities. The net result is that more radio stations operating without concessions are closed down every year than new concessions granted, showing that the level of access to a concession falls far short of attending to people's demands.

The difficulties to access the spectrum are amplified when looked at through an intersectional lens, meaning that even among the groups that have been awarded concessions, women and minorities are still marginalised and occupy secondary posts. It is evident that in most community radio stations in Brazil, women still occupy positions related to secretarial duties and cleaning, and are very rarely in positions of leadership and technical management. The fact is that the whole decision-making process of the allocation of the radio spectrum is still practically all male driven, from legislators to regulators, leading to the lack of diverse and feminist perspectives regarding the possibilities of use of spectrum as a resource. This patriarchal domain makes spectrum access difficult and hinders the increase of diversity in community radio networks. Sadly, because of the facts mentioned

above, nowadays LPFM radio stations in Brazil are mostly used by evangelical groups with religious and economic purposes rather than cultural and political objectives. New kinds of technologies that use radio spectrum and could decrease social gaps are not being explored or are even undermined in Brazil. This is the case of digital radio, which can enlarge the access to frequencies and even send other kinds of data like images and videos, in addition to audio. Digital radio could be a communicational solution for communities in remote areas that lack access to basic services and the internet.

To destabilise, but not conclude

More than producing definitive answers, we expect with this report to create destabilisations that enable us to rethink community networks, and to challenge the current internet world order by following a different method, considering the local context and demands from a feminist perspective on infrastructure.

Shared experiences in processes of building and maintaining community networks, or other collective forms of ICTs, have the potential to challenge the way in which broadband, wireless or radio connections have been implemented in rural areas and the periphery of urban centres. Usually these experiences either attend exclusively to commercial interests or aim at simply, quickly solving the problem of the digital divide through internet access.

It is unquestionable that the experience of community networks has the potential to address the invisibility of infrastructures.³⁷ At the moment these networks usually occupy an abstract place in our imaginary but their impact on our day-to-day lives and the power relations they establish gain a bolder materiality. From our perspective, community and autonomous networks are not limited to a shortcut for development or a “breadcrumb” offered to “disadvantaged” groups to access the internet. They represent a possibility of establishing connections based on grassroots rules and in which technologies can be re-appropriated, or creatively used or repurposed.

However, it must be noted that any process of interaction with technology carries constraints and conventions that may reproduce hierarchies and inequalities even in collective processes. In other words, even community networks can reproduce norms that alienate women and non-hegemonic groups from spaces of power and autonomy. In addition, some collective experiences based on

37 Bowker, G., & Star, S. (1999). *Sorting Things Out: Classification and Its Consequences*. Cambridge: MIT Press.

“one-weekend workshops” and flash projects of network implementation run the risk of being detached from local demands, failing to build long-term autonomy and strengthen communities.

In this broader context, the presence of diverse women in the design and management of infrastructure and networks – in addition to making these spaces more democratic – seems essential to challenge the androcentrism and colonialism that contaminate our knowledge and practices in the global South. In the experiences we quickly presented here, the presence of diverse groups and the absence of pressure for a quick incorporation of a certain technique or for network expansion are in line with the time needed to mix knowledges and to mature human connections towards making our networks more communitarian, free and autonomous.

The presence of diverse women is fundamental on several levels, from the implementation and management of a local network to institutional spaces of decision making. The lack of popular and community access to the radio spectrum, for example, is another important community network issue that it is clearly a matter of human rights and should be addressed carefully by politicians and legislators,

and hopefully in the most intersectional way possible. The digitalisation of the FM signal could be a way of broadening access to this common good, considering that the digital signal occupies less bandwidth than an analogue signal, and there is technology to make better and more dynamic use of spectrum using software-defined radio (SDR) and cognitive radio technologies. Brazil, however, is far from digitalising the radio signal and promoting a more democratic, less bureaucratic and profit-based model of access to the radio spectrum.

Finally, as we have argued, we see evidence that mere access to new technology could reinforce rather than reduce inequalities. This observation seems important to break the invisibility not only of technological infrastructure, but also of the asymmetries of power that are clear from an intersectional perspective. This means proposing alliances that do not erase differences, but instead value the power of diversity. It also means a commitment to an active effort to link digital expertise to women’s different grassroots technologies and skills already in use, and to local daily life, aiming to create a welcoming and safe environment for those who are outside the hegemonic norm.

Community Networks

THE 43 COUNTRY REPORTS included in this year's Global Information Society Watch (GISWatch) capture the different experiences and approaches in setting up community networks across the globe. They show that key ideas, such as participatory governance systems, community ownership and skills transfer, as well as the "do-it-yourself" spirit that drives community networks in many different contexts, are characteristics that lend them a shared purpose and approach.

The country reports are framed by eight thematic reports that deal with critical issues such as the regulatory framework necessary to support community networks, sustainability, local content, feminist infrastructure and community networks, and the importance of being aware of "community stories" and the power structures embedded in those stories.

GLOBAL INFORMATION SOCIETY WATCH

2018 Report

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