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The judicial debate about mobile phone radiation and masts in Brazil: protection by the state against the state?

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Abstract:
This article analyzes judicial conflicts between telecommunications and environmental regulation concerning mobile telephony in Brazil, in comparison to some international cases. The English case shows how some studies led to a wave of protests against the installation of masts. The Brazilian debate regarding health risks entwines concerns about the environment and urban aesthetics. Therefore, judicial conflicts oppose the regulatory agency against municipalities or even state environmental protection bodies. The article encompasses the debate in the social theory regarding the risks posed by technologies and a description of Brazilian cases to compare them. The article concludes that the issue of the risks and their impact on Brazilian social life does not attract local community involvement and action. The Brazilian conflicts evolved similarly to the Italian situation and differently to the cases of the United Kingdom and the United States.

Keywords:
Legal comparison, judicial conflicts, mobile phone radiation, mobile phone masts, telecommunications' regulation.

1. INTRODUCTION: MODERNITY, TECHNOLOGY, AND RISK SOCIOLOGY

We can understand the 20th century as the culminating point of large-scale endeavors in the history of humanity. Until the mid-19th century, European nations were still not predominantly organized into large urban centers. Most of their populations lived in rural areas. The industrial production first became irreversibly entrenched in England. It took

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many decades for industries to spread to distant areas of the planet, such as South America and Asia. The industrial revolution also came with modifications on the cultural manifestations, to fit the societies to the new mass consumption social system. However, this process was only fully evident in the following century. The feeling in the arts and social life was one of accelerating change. This was felt as well in the political domain. South America freed itself from Iberian domination while the United States was engaged in the great internal political and social organization dispute, which would culminate in the Civil War. These are just a few examples of the gradual increase in the quantitative scale of human undertakings. Modernity came with a new form of society and a new widespread social use of technology. This new society demands a renewed sociological theory.

The sociological theory produced at the end of the 20th century was confronted with the need to rethink the initial postulates established by the field's classic authors. As Anthony Giddens (1991) rightly shows, it was not only the appearance of globalization as a concept used to designate the phenomenon of the intensification of social exchanges that made it necessary to reformulate social theory. The new social theory debate focused on the need to rebuild concepts that were considered settled. One can thus understand why Peter Wagner (1994) emphasized the need to surpass the canons of the discipline. We can characterize these debates about the sociological theory as a new epistemological tendency that followed objectives such as the re-description of classical theory, aimed at producing a new general formulation. As such, it led to the emergence of the most outstanding body of work regarding the mass production of risks in contemporary life: the sociology of risk (Tierney 1999, Elliot 2002, Lupton 2006). The work of Ulrich Beck has become a necessary frame of reference in the debate because it focuses on one of the most impressive characteristics of the pallet of themes related to sociological thought: mass fear on a global scale. Taking as his starting point the powerful image of world disasters such as Chernobyl, which transcended the political frontiers between countries, the author questions the validity of various classic concepts of social analysis. One of the nodal points of the book relates to the loss of certainties that is characteristic of the crisis of the project of modernity. The idea that harmful events experienced in daily life directly influence the social mode of production may seem commonplace. However, when one considers that the author's work seeks to understand the breakdown of the spatiality of risks – and their cognition – one realizes how innovative it is. One example is the contamination of the world's population by pesticides. Ulrich Beck says that traces of insecticide can be found not only in Europe's population but also as far afield as the flesh of Antarctic penguins, showing that:

> The risks of modernization are at the same time spatially related and unrelated and have a global reach; and, secondly, just how incalculable and unpredictable the intricate paths of their harmful effects are. Thus, in the risks of modernization, something that in objective-content, spatial and temporal terms is found separately, is causally congregated and besides placed simultaneously in a position of social and legal responsibility (Beck 1992, p. 33).

One can understand this article's central subject – the Brazilian judicial conflicts about mobile phone masts – with the usage of the research agenda of new sociology, mainly with the debate related to new social institutions and especially the importance of the discussion of rights. Therefore, the debate about the widespread technology risks can be framed in the studies that describe the increase in power of courts and the law in various countries (Tate & Vallinder 1995). After all, there is an inevitable translation of the social and political

debate to the legal terms in the context of conflicts arising from the diffusion of new technologies and their inherent risks. This understanding makes extremely opportune the debate of new social and political grammars, as well as new ways of defining public policies. To summarize, there is a need to include these judicial institutions and their forms of expression in the broader social and political debate. The research of Pierre Rosanvallon (2011) shows the need to develop the underpinnings of a new theoretical understanding that can take account of the emerging spaces of social and state life. According to the author, classic social and political theory focused on a kind of institutional arrangement that has since changed completely. Thus, the contemporary theoretical framework does not yet provide the answers that are necessary for the formulation of a new political grammar that includes the independent regulatory agencies and the courts as entities that define public policies and the social game (Rosanvallon 2011, p. 10).

It is important to refine the great picture into a smaller object of analysis. The debate around social risk is illustrated by the case of the diffusion of mobile telephony that also provides elements for the debate about contemporary social life. It is a well-known fact that mobile phones have evolved beyond their traditional role as phones. These handsets are now increasingly becoming small computers with countless possibilities and applications, offering various forms of electronic connection. The use of these mobile phones to connect to the Internet, combined with the miniaturization of electronic components, has caused a social revolution. MacGuigan (2010) provides an illustrative chapter devoted to the theme. He divides the "sociology of the mobile phone" into four possible fields of analysis (social demography, political economy, conversation, and ethnography) and, for didactical purposes; he shows that the classic authors of the technological revolution were unable to foresee the possibilities and sociological questions related to the portability of communication systems. The example of Manuel Castells stands out given that his book about new information and communication technologies has become a classic (1996). Nevertheless, afterward, this author incorporates the "mobile revolution" into his theoretical and empirical framework (Castells, Férnandez-Ardèvol, Lichuan Qiu, and Sey 2009). Another sociology author is John Urry, whose work deals with different kinds of mobility (2000). The author was more concerned with a theme that is currently very relevant: the demographic movements that generate an increase in interchanges and potentially impose limits on the definition of sociology's object. The new societies tend to be redefined by such mobility movements. There are various themes to discuss, but the use of the new forms of communication for political purposes constitutes a particularly interesting field of studies. One of the themes listed by MacGuigan is particularly important for this article, namely the controversy surrounding the health risks of mobile telephone communication masts and handsets. This article makes a comparison with the wide-ranging study performed by Adam Burgess (2010) on the subject. He concludes that in the British case a range of factors intervened to transform the issue of the risks of mobile telephony – and its masts and handsets – into a highly visible problem in the Western world. As well as the evident media exposure, there was a reaction by the State based on the precautionary principle, which translated into a series of actions, despite the lack of strong evidence. He cites regulation in Italy and Switzerland as examples of a robust application of precaution, as well as showing that the theme has become a global one, given that globalization is related to other issues as well as those of an economic or political character. Social issues such as the fear of the harmful effects of a widely used technology also possess the universality to become global themes.

The first section of the article analyzes the well-documented case of the United Kingdom and makes a brief analysis of other international cases, establishing a parallel with the situation in Brazil. The second part shows that international cases have indeed influenced the discussion in Brazil, due especially to the inclusion of the issue into the environmental agenda, which involves – albeit in a rather indirect fashion – the health of municipal residents. The third part shows that the public policy debate is filtered in the judicial discussion as a conflict involving administrative separation of powers. This is because the 1988 Brazilian Federal Constitution granted environmental supervisory powers to all levels of government in the country. The paper concludes that the Brazilian case resembles the Italian one. In Brazil, the subject of mobile phone radiation fears came not from civil society, but the state and its environmental protection agencies.

2. THE INTERNATIONAL DEBATE AND MOBILE PHONE-RELATED FEARS

The civil society opposition against the installation of mobile phone masts took three forms, broadly: hypotheses from scientific research denounces from media coverage and lawsuits from civil society or state agencies. The appearance of preliminary research indicating the possibility that harm could be caused by non-ionizing electromagnetic radiation from handsets and masts led to the publication of a series of articles initially in the English press. The subject spread rapidly throughout the English-speaking world and demonstrations and lawsuits were quick to follow in the United States and Australia. As shown by Adam Burgess, this threefold movement began in the 1990s when mobile phone use began to spread throughout the world (2004, pp. 75-97). During the mid-1990s, several English newspapers like "The Observer" published articles on the subject in the United Kingdom. However, the subject became more well-known when the BBC devoted a program of the "Watchdog Health check" series to it and the "Sunday Times" published a front-page report entitled "mobile phones cook your brain" in April 1996. Campaigns in the British media continued for a considerable time and small protest groups began to appear. These groups joined together in a nationwide campaign called "Mast Action United Kingdom" (MAUK). The main purpose of these campaigns was to try to remove mobile phone masts from regions that were considered sensitive, such as areas near houses, hospitals, and schools (Law, McNeish 2007). This mobilization coincided with the diffusion of the Internet and most campaigns began to use electronic means. The environmentalist group "Friends of the Earth" was important in the organization of local actions. However, it ceased to act at a nationwide level and began to support the MAUK's initiatives. A detailed study of one of the English protest groups highlighted a paradox: it is the intensive use of mobile phones by members of the protest groups to organize actions designed to create awareness of the potential damage to health caused by handsets and masts (Drake 2006, pp. 387-410; Law, McNeish, and Gray 2003). However, this paradox is not a real problem. Political and legal actions aimed to relocate masts to places where, in theory, the potential risks of exposure to electromagnetic waves would be diminished. In reality, the protests were not directed against mobile telephony itself but rather against the installation of masts in certain places. It is important to note that institutional responses occurred in the United Kingdom. Besides performing various public consultations and commissioning additional studies, steps were taken to avoid the installation of masts near schools. Adam Burgess considers that the British government's regulatory action was open and responsive in that it was receptive to group campaigns and pressure from the media. The English case shows that the government's reaction was not the result of an abstract concern with the "public interest"

or the precautionary principle emanating from its bureaucracy. It was the result of social pressure. This is because studies of technological fears ranked mobile phones at the bottom of a list of environmental concerns, below even than noise pollution.

Another perspective on the subject can be obtained from the relative receptiveness of various national governments to the same problem. A study also conducted by Adam Burgess compares five countries: United Kingdom, United States, Australia, Ireland, and Italy (Burgess 2002, pp. 175-188). He shows that the state bodies' readiness to address the theme enhanced the firepower of the campaigns in terms of media coverage and direct actions, affording them national importance. The image below summarizes the logic of growth of these social conflicts:

FIGURE 1

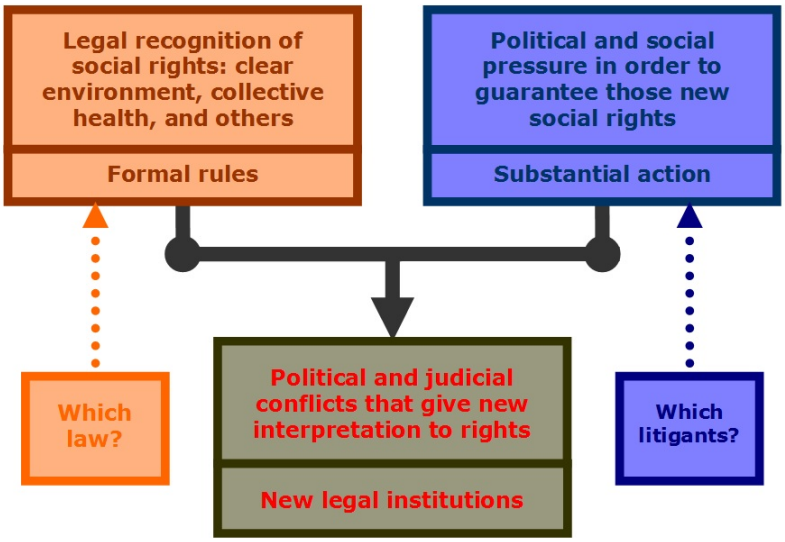

Figure 1: The cycle of legal insurgency in the US and UK cases.

In the case of the United States, the regulatory arrangement in the telecommunications area put the theme under the spotlight of the Federal Communications Commission (FCC), which expropriated the powers of local authorities (municipal and state alike) to regulate the issue nationally, even in terms of its urban land use and the environmental aspects. In Australia, the state became deeply involved and this helped strengthen the actions of pressure groups at local and national levels. Adam Burgess considers that the issue became political as the Australian Democrats party included the subject in its agenda. The former Australian Senator Lynette Fay Allison spoke about this in 2007. The opposite happened in Ireland. Despite an initial mobilization, political parties did not adopt the theme. The actions there were limited to those undertaken by local groups without strong ties with the political or state spheres. Nonetheless, the Italian case is closer to the current situation in Brazil. The former country's constitutional arrangement allowed local governments to legislate on the matter and granted Italian local judges considerable interpretative powers, which made the Judicial Branch an arena of conflict. Thus, in the Italian context, judges and local governments further reduced the national exposure non-ionizing radiation standards that had already been fixed at lower levels in comparison to other countries. The next two sections analyze the Brazilian case so that final considerations can be made in comparison to the international debate.

3. THE BRAZILIAN DEBATE ABOUT MOBILE PHONE RADIATION

This section analyzes judicial cases to show that the debate in Brazil occurred diffusely and it became entwined with the defense of the environment, the quality of urban life and the protection of health. The debate became part of a broader new rights protection movement (McAllister 2005, Fernandes, 2007, McAllister, 2008). To understand how the mobile phone radiation issue becomes a part of this broader movement, it is necessary to map three conceptual and empirical elements. The first one is the Brazilian law (legal rules), which recognizes the abstract existence of some rights, like the social right to a healthy environment and the right of the persons to have good health. The second one comprises the political and judicial struggles from the litigants, who bring such abstract rights in motion. The continued interaction between those two former elements results in the consolidation of the new rights as institutionalized rights. The social process does not create rights. It recognizes and enforces them.

However, to understand the debate – as it occurs in Brazilian courts – it is important to have a previous overview of the administrative organization of municipalities, states, and the federal government. Information on the civil law tradition also adds key information to understand the Brazilian judicial system (Merryman and Pérez-Perdomo 2007; Schlesinger, Mattei, Ruskola and Gidi 2010) as a little bit of constitutional history also does (Afonso da Silva 2019). Brazil is a federation with some peculiar features (Wilson, Ward, Spink and Rodríguez 2008). The current constitutional text was promulgated in 1988 and its Article 1 states, "The Federal Republic of Brazil, formed by the indissoluble union of the states, municipalities and the federal district, constitutes a democratic state governed by the rule of law". The country certainly adopted an innovative form. Usually, the union of the states leads to the formation of a federation. Municipalities or counties are administrative entities inside the states. The Brazilian Constitution recognizes powers to the municipalities and thus give them an autonomous legal existence. This legal status generates the curious equivalence to the municipalities, in terms of autonomy, with those major entities (states) that encompass them. The Constitution entitles the municipalities with such power as its Article 18 states explicitly that: "The political and administrative organization of the Federal Republic of Brazil includes the federal government, the states, the federal district, and the municipalities, all of them autonomous, in the terms of this Constitution". It is important to highlight this legal concept of municipal autonomy, given that most conflicts involving mobile telephone masts originate from lawsuits that discuss the limits of the federal law against local administrations' regulations and law. Just to compare, the Tenth Amendment of the United States Constitution rules a separation of powers between the Federal Government and the States: "The powers not delegated to the United States by the Constitution, nor prohibited by it to the States, are reserved to the States respectively, or to the people".

Having established that the Brazilian 1988 Constitution innovates by placing the municipalities on an equal footing with the states and the Federal Government, one must complement this picture with a little bit more of legal information. The Constitution grants some legal powers on an equal footing and some other powers as exclusive. Among the former, which are the relevant ones for the present article, is environmental protection. According to Article 23 (VI) of the Brazilian Constitution, all entities – Federal

Government, states, and municipalities – share this power and the obligation to enforce it. Among the latter, Article 30 of the Brazilian Constitution grants exclusive power to the municipalities to enact regulation on urban land use and local affairs. Article 32 of the Constitution grants to the Federal District both the powers of the states and municipalities. The Brazilian Constitution, on the other side, grants a wide array of exclusive powers to the Federal Government. Among them, it is worth highlighting the power to legislate on telecommunications, as expressed in Article 22 (IV). Also, Article 21 (XI) of the Brazilian Constitution states that all administrative conducts regarding telecommunications should be performed with compliance to federal regulation, enact by the Federal Government. This institutional arrangement came from the historical integration of the telecommunications sector in Brazil through a national public enterprise, privatized in 1998. Despite the privatization, the telecommunications sector maintained the logic of a national system, integrated and regulated by the federal government (Anuatti-Neto, Barossi-Filho, Gledson de Carvalho and Macedo 2005). Currently, there are many private enterprises, which provide the services.

To analyze the conflicts between the federal telecommunications regulation and the intervention of municipalities' executive and legislative powers, it is useful to focus on two groups of legal cases. In the first group, the municipalities fill lawsuits to charge enterprises for the use of urban space. The private companies must place a great share of the infrastructure necessary to provide telecommunications services in the streets or atop some buildings, like air-cables and masts. To increase their sources of revenue, municipalities passed acts and decrees enabling them to charge for the installation of cables, pipes or masts in their public spaces. A clear example is the attempt to charge for the installation of underground cables for the provision of pay-TV and broadband Internet services. Common sense would considerer these charges to be lawful since the private companies must pay to place masts on the top of public and private buildings.

The second group encompasses litigation regarding the power of the municipalities to regulate the installation of mobile phone masts known as radio base stations (RBS). May a municipality pass regulation into law to create environmental or aesthetic standards for the deployment of masts? Surely, the local affairs and land use fall under the regulatory powers of local administrations. It is possible to identify an abstract harmony between local administrations and the Federal Government regulation. The former would provide local licenses, authorizing for the installation of RBS on public spaces. And the Federal government would provide technical standards and equipment certification through its regulatory agency. In logical terms, there would be no reason for conflict between the two regulations, since the Constitution divides the administrative powers in a logical system, at least on paper. Therefore, one can imagine that there would be no reason for a municipality to file a lawsuit against any private telecommunications company or any national regulatory agency and vice versa. However, in practice, the conflicts between them do arise and are not merely over pecuniary matters. Research into the case law consolidated in the Brazilian High Court of Justice ("Superior Tribunal de Justiça") shows that the two groups of lawsuits have sixteen final rulings.

The selected cases consist of collegiate decisions regarding against decisions of lower appellate court judges. When a litigant loses a lawsuit after having sued the other party, he can appeal to a higher court to purchase the reversal of the previous ruling. This is a common practice throughout the Western world. However, after the collegiate court decision, there may be a third appeal, which varies from one legal system to another. In the

United States, for example, all states have a state supreme court. In Brazil, none of the states has local supreme courts. There is just the Federal Supreme Court ("Supremo Tribunal Federal"). Moreover, in Brazil, until recently, there was only one kind of "third-tier" appeal, named the extraordinary appeal. Until 1988, such a "third-tier" notice of appeal could only be filed to the Supreme Court. The 1988 Constitution created the possibility of another "third-tier" appeal called "special". This new appeal falls under the authority of a new federal court. The Brazilian 1988 Constitution creates the Higher Court of Justice as the legislators' understood that the Supreme Court should concentrate its efforts mainly on reviewing lower-grade rulings about allegations of violation of constitutional rights. In practice, the idea was to make the role of the Brazilian Supreme Court a little bit closer to the United States model, examining only extremely controversial issues. Thus, the extraordinary appeal – after the creation of the new High Court of Justice – would concentrate only on examining the violation of constitutional provisions relating to the rulings proffered by state and federal courts, whereas special appeals would focus on the allegations of violation of the federal law.

There is only one ruling of the Brazilian Supreme Court concerning the conflicts involving private companies' masts and municipalities. It is the Extraordinary Appeal No. 776,594. The final judgment, by January of 2020, is still pending. Nevertheless, the future ruling will have a widespread binding effect to all the Brazilian courts and it will set a constitutional standard about the question of whether a municipality can create fees to grant licenses for the installment of RBS. Therefore, the Brazilian Higher Court of Justice settled all the typical cases under analysis in this paper.

In the first group of appeals – related to charging for public land use – only two of the seven appeals were accepted. The reasons for non-acceptance relies on two legal arguments. The first involves the partition of powers between the two high courts, the Supreme and High Court, as already explained. If the court of appeals decides that the legal issue under appreciation is based solely on the direct application of the Constitution, the appeal is not accepted by the High Court. An alleged constitutional violation only can be reviewed by the Supreme Court and never by the High Court. The second legal argument for non-acceptance of a case is based on the understanding that it is not possible to review the states and municipalities' law before the High Court of Justice or the Supreme Court. Thus, none of the two superior courts can indicate the correct interpretation of local law. They can only determine that a local norm should not be applied if it conflicts directly with a federal or constitutional rule. The second group of cases relates to the installation of masts. Four of the ten appeals filed were accepted. There is a type of appeal that deserves to be highlighted. It is the appeal against a ruling in a *writ of mandamus* lawsuit. In this kind of case, the High Court of Justice acts as if it was an ordinary court of appeal. This kind of notice of appeal is filed against rulings that examined the correctness of administrative actions by state authorities. These *writs of mandamus* are filed directly in the state courts (appellate) and not within a county (district) or local courts. The table below lists various decisions with a small description. It summarizes only a small part of those cases that were accepted by the High Court of Justice. Lawsuits in Brazil are identified by a reference number and not by the parties' names, as it is the case in the United States of America. There is also a third group of rulings. This kind of ruling analyzes urgent measures that lower courts may grant to preserve the facts under debate in the cases. Sometimes, the long duration of a legal process may turn the future judicial decision useless. To prevent this, a court may grant an urgent decision. The table summarizes one case of each kind. One ruling from a special

notice of appeal. One ruling from a *writ of mandamus*. Moreover, one ruling analyzing the necessity of an urgent measure.

TABLE 1

Subject	Appeal	Result
Charging telecommunications companies for the use of land by municipal acts or decrees	Special Appeal No. 881,937 (Brasil Telecom v. Quaraí Municipality), decision published on April 14th, 2008.	Brasil Telecom filed a notice of appeal against the payment of a charge for the installation of mobile phone masts. The Municipality of Quaraí enacted a regulation to impose the charges. The company won the appeal based on legal precedents that considered unacceptable that municipalities could create such charges.
The local act that prohibits installation or that determines the removal of telecommunication infrastructure (mobile phone masts)	The appeal against a W*rit of Mandamus* No. 22,885 (Global Village Telecom and Mobile Phones' Providers National Association, ACEL v. Federal District), decision published on May 17th, 2008.	The court ruled that the local law could impose limits on the installation of the new mobile phone masts. It ruled also that the old masts should undergo a new licensing process.
Administrative decisions from state environmental agencies that impose limits to the installation of mobile phone masts	Urgent measures appeal from the Rio de Janeiro and São Paulo state courts, ruled through 2008 to 2010.	The Rio de Janeiro State Court denied the urgent measure. The São Paulo State Court granted it. The arguments were the same but used in opposite directions.

Table 1: Selected judicial cases regarding mobile phone masts.

The next sections of the article describe with further detail those three typical situations and rulings.

3.1. THE CHARGING FOR THE INSTALLATION OF TELECOMMUNICATION INFRASTRUCTURE

A case provides a good illustration of the controversy surrounding the issue of municipalities charging for the installation of telecommunication infrastructure. The first is the Special Appeal No. 881,937 (Brasil Telecom v. Quaraí Municipality). In this case, the Municipality passed a municipal act, which instituted the charge for the use of land or overhead space by telecommunications companies. The crux of the debate in the court was limited to deciding whether the charge, established by a municipal act, was lawful or unlawful. There could be two interpretations. The first one is the possibility that a municipality can charge a remuneration for the use of public spaces by public utilities, based on the argument that its use may generate costs and that the municipality, being the administrator of common goods (like a street) can collect these values. This understanding relies on Article 103 of the Brazilian Civil Code: "The common use of public goods may be free of charge or remunerated under what is legally established by the entity responsible for their administration". This argument falls within the terms of property law and administrative law. From this perspective, the charge is legal and legitimate. The second interpretation of the facts relies on tax law. In this field, the municipal charge had no lawful base. In Brazilian Tax Law, a lawful charge of this kind must fall under one of the three types: a tax (like revenue tax), a fee ("taxa", in Portuguese, which requires a specific service), or a public price (an amount to be paid, whose legality comes from a contract and that requires a service). The landline phone and mobile phone company, Brasil Telecom, filed notices of appeal against the state court ruling. The result was favorable to the petitioner. The High Court of Justice reversed the ruling of the São Paulo state court. Let us examine the controversy from the three perspectives: property law, administrative law, and tax law.

TABLE 2

	Perspective in favor of the charge	Perspective against the charge
Property Law	The Civil Code defines public spaces like those of common use by the people and permits charging for their use. Besides, according to the dissenting vote, the municipality had constitutional support for charging. According to the Federal Constitution, it is the municipality's prerogative to regulate local matters and urban land use.	The Municipality is not the owner of these goods. It only administers them. Therefore, any person may use them (as they are "for the people's common use"), as long as it observes the restrictions legally imposed on all, without distinction, like safety and health standards. As a rule, the use of these goods is "free of charge". The payment is exceptional. However, under no hypothesis, the Municipality could charge rent, because it does not own the public space. It merely administers it.

	Perspective in favor of the charge	Perspective against the charge
Administrative Law	An Article of the Federal Telecommunications Act (Federal Statute No. 9,472/1997 states that "the authorization for the provision of telecommunications services does not exempt the service provider from observing engineering technical norms and municipal, state or federal district legal law relating to the construction and the installation of cables and equipment in public areas".	There is no way of obliging a party to sign a contract for the use of a common good, as it is not legally possible. Therefore, the Administrative Law only considers lawful the obligations from contracts that both comply with the Law and to the free will arrangements. The court explicitly ruled, "one cannot demand the signing of an administrative contract (as foreseen and determined in Article 2 of the municipal act). A contract presupposes free will and a bilateral relationship. That situation is absent in the present documents in which the imposition of one will is evident and blatant".
Tax Law	Articles 77 and 78, of the Brazilian Tax Code, allows municipalities to establish a charge, based on their administrative power. The charge must directly relate to administrative regulation.	It is not possible to charge in the form of a fee ("taxa") because this kind of charge requires the existence of a service rendered or the regular exercising of the administrative power. The use of a common good does not fit the hypothesis.

Table 2: Different legal perspectives on charging telecommunications' infrastructure.

At the end of the controversy, it was indisputable that the municipality violated the federal statutory law. The municipality could create and impose these charges. The majority vote relied on a previous case. In this previous case, the Court of Justice of the State of Sergipe had considered that a similar charge was a form of rent for the use of public space. Therefore, the Court adopted the tax law perspective on the theme and ruled that the charge would constitute a "false fee" and not a "rent", as it is not feasible to rent a good that anyone can use.

3.2. THE MUNICIPALITIES' ADMINISTRATIVE REGULATION POWER IN THE CASE OF RBS INSTALLATION

The next case well illustrates the conflicts between municipalities, states, and the Federal Government. Union. The High Court of Justice ruled on a notice of appeal filed against a *Writ of Mandamus* No. 22,885. In this kind of appeal, the High Court of Justice re-analyses everything that the local court of appeals ruled. Thus, in such cases, the High Court of Justice acts like an ordinary court of appeals (the "second-tier") and not like a court of special appeals (the Brazilian "third tier"). In the case, the Federal District Government determined the removal of a large number of RBS, following a recommendation by the Public Prosecutor's Office, to protect the environment, health, and other social values. The central point of the majority vote was that both the Federal District Government and the National Telecommunications Agency have powers and that they do not collide. The

Telecommunications Agency should license the RBS after verifying the compliance to technical norms. However, the High Court of Justice considered that the Federal District Government could impose licensing concerning environmental protection. The lawsuit aimed to reverse the Federal District Government administrative order to remove the mobile phone masts that could not reach the environmental standards, created by local law. Before describing the case in more detail, one should note that the debate still revolves around the dichotomy between the regulatory agencies' powers and the powers granted to the municipalities and states.

There were two notices of appeal against the local state court ruling. The National Association of Mobile Phone Operators filed the first. One company – Global Village Telecom – filed the second. The company had a high number of mobile phone masts under risk of removal. The judicial decision finally recognized the Federal District's power to remove those masts that did not comply with its local legislation, which was restrictive. Thus, the old masts, which had received licenses based on the less rigorous law, could remain in place until those licenses expired. On the other hand, the new mobile phone masts that have not reached the standards. After all, their licensing was pending. The High Court of Justice upheld the Federal District Government's decision: RBS without licenses would have to comply with the new local law standards, the old ones could remain. To summarize, in this ruling, the High Court of Justice asserted the existence of a perfect complementarity between the norms established by the National Telecommunications Agency for authorizing the installation of RBS and those relating to urban and health restrictions determined by municipalities and states. After this ruling, the Brazilian National Congress approved a bill to pass into law a federal act to grant more power to the National Telecommunications Agency: Federal Statute No. 13, 116/2015. Paragraph 2 of Article 19 is very clear, "The radio base stations that receive licenses by the National Telecommunications Agency and that comply with the legal and regulatory standards must not be hindered deployment on allegations that they may expose humans to non-ionizing radiation". The Federal Government expropriated the local powers to itself. Therefore, the second case lost a lot of its importance as a precedent.

We can now proceed to the last case. It involves the attempt by the environmental protection agencies of the States of Rio de Janeiro and São Paulo to establish regulations that restrict the functioning of mobile phone masts.

3.3. THE ACTION OF STATE ENVIRONMENTAL AGENCIES AND THE LIMITS TO THE INSTALLATION OF MASTS

Why is this case important? It demonstrates how the legal debate regarding the wellbeing of residents entwines with environmental issues. The case starts with the Urgent Measure Request No. 17,449 filed in the High Court of Justice. In this case, the Rio de Janeiro State Environment Institute, which is the local environmental protection agency, created regulations with strict requirements for the installation of mobile phone masts. The legal rule at issue was an Administrative Deliberation enacted in March of 2008, drawn up by the State Environment Commission, and published in the State of Rio de Janeiro's Official Gazette on April 14, 2008. The regulation contains many items with enormously complex details. The central point is the determination that all RBS should comply with the norms in 180 days and that companies should request new environmental licenses in 120 days. Besides, companies would have to bear all the costs of licensing.

In this case, the notice of appeal petitioner was the State of Rio de Janeiro. The appellate court granted the urgent measure to the companies and the State was trying to reverse this result at the High Court of Justice. Nonetheless, the State lost this case. Nevertheless, in a similar case, the State Court of São Paulo arrived at a very different conclusion. It ruled that the precautionary principle justified the granting of urgency to determine the removal of a mobile phone mast in the Municipality of Guarulhos (State of São Paulo). It was the Urgent Measure Appeal No. 990.10.015187-8 (TELENORTELESTE v. São Paulo State Prosecutor's Office). The State Prosecutor's Office based all its arguments on the precautionary principle. Nevertheless, the prosecutor indicated that, although there was no conclusive scientific proof of potential damages to the health, there were potential risks. Two rulings, two different interpretations of the precautionary principle. Table 3 compares both rulings showing that they had opposite results:

TABLE 3

	Rio de Janeiro state court	**São Paulo state court**
Transcription of the rulings	"As if it were not sufficient to have intruded upon a matter, which is the exclusive domain of the federal agency, the state administration even determined the removal of RBS installed in full compliance with all regulations and with the authorization of the federal agency and the municipalities themselves. Such a serious measure would only be justifiable in the light of overwhelming evidence that the population was imminently at risk because the 'precautionary principle', without a basis of proven fact, does not legitimize erecting an obstacle to a business activity that has become indispensable, like mobile telephony".	"The arguments favorable to the precautionary principle are thus justified. This is why it prevails in environmental matters, given the countless violations of fundamental rights. The right to life, to health and wellbeing, must prevail. When an activity may harm human health or the environment, preventive measures should be taken, even if some cause and effect relationship has not been completely established scientifically. For many years, the environmental and public health movements have been fighting to protect health and the environment, while there is still no scientific certainty as to cause and effect".

Table 3: Different legal perspectives about the precautionary principle.

In this São Paulo case, the removal of the mobile phone mast happened. The legal basis for the removal was the urgent measure. The state court considered that the potential risk justified the removal of the mast. There is recent literature that defends the application of the precautionary principle, similarly (Elonheimo, Hagström, and Ekman 2016). Other authors defend the application of strict limits provided by some international regulation, as could be defined by the World Health Organization. These two last cases show that the conflict between companies, states and municipalities has evolved in the direction of the

protection of the environment. This shows that, in Brazil, the conflicts do not draw upon social protests as evidenced in some of the international literature. In the United Kingdom, state agencies and entities only acted after various political actions led by individuals, associations and the media. In the case of Brazil, on the contrary, local community associations have done little on this matter. Therefore, the legal clashes come from local prosecutors' offices or municipalities.

4. CONCLUSION

All technological advances come along with various consequences and social phenomena when they become objects of use by the mass of consumers. The social use of new technologies usually provokes reactions and fears on the public. This happened with television radiation, for example. The television once was suspect of causing eyesight problems and was even associated with cancer. Nowadays, the habit of watching too much television comes into scrutiny as some researchers study the correlation between it and some social problems like violence (Centerwall 1989) and children's obesity (Lumeng, Hahnama, Appugliese, Kaciroti, and Bradley 2006). The appearance of many products that cause damage to health has strengthened the legal development of the precautionary principle and its use as an argument to hinder the diffusion of new technologies. The mobile phone – and its masts – cause widespread fears in various countries. However, actions and reactions vary from country to country. Moreover, the same fear, founded on the precautionary principle produced different social and state actions that bore a relationship to each country's traditions. Based on the research of Adam Burgess (2002 pp. 175-188), we can identify similarities between the Brazilian and Italian cases since lawsuits and administrative measures against mobile phone masts were usually undertaken by public prosecutors' offices and by local governments. Of course, such path tends to complicate the application of strong standards, since they rely on local insurgency to happen. Nonetheless, the Brazilian case shows a very interesting situation. The local insurgency started in municipalities and some states. However, this gave rise to many different local standards. When this happened, the Federal Government set up a political agenda to regulate the matter nationally. It is also interesting to identify that the Brazilian telecommunications regulatory system uses the United States and United Kingdom agencies as models. For instance, the judicial system enabled actions to be undertaken in a way that closely resembled the Italian case. The image below summarizes the Brazilian case:

FIGURE 2

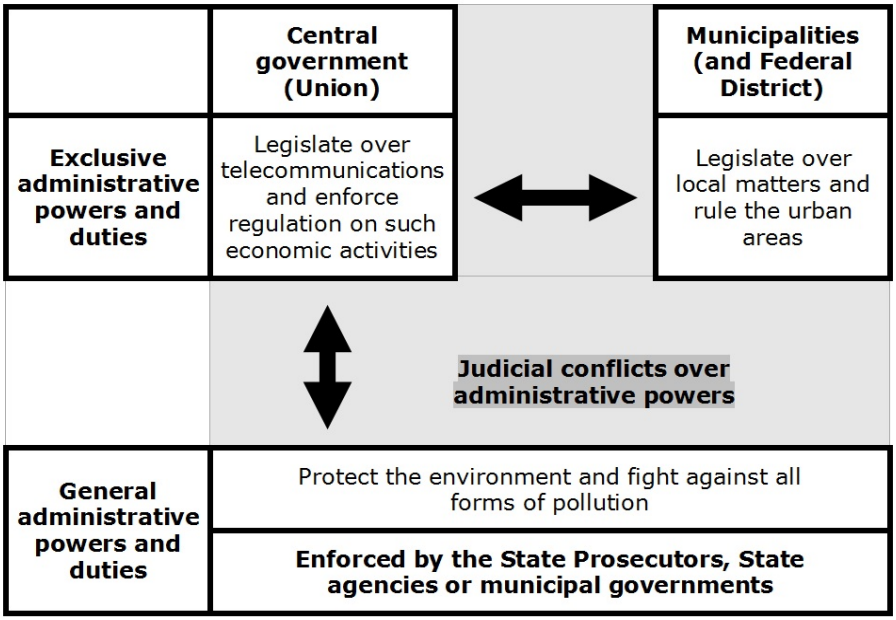

Figure 2: National and local power disputes in Brazil.

After many years of insurgency, the National Telecommunications Agency received powers to enforce regulatory standards, with the Federal Statute No. 13, 116/2015, quoted before in this article. Therefore, any local insurgency may dialogue with the Agency to redefine local deployment policies. Something similar also happened in the United Kingdom, where the Office of Telecommunications sponsors national policies to mobile phones and wireless networks evolvement (OFCOM 2018). Also, the United States' Federal Communications Commission has guidelines to archive similar purposes (FCC 2019). The importance of this issue will probably escalate in a few years to come with the adoption of the fifth-generation (5G) of mobile phone networks (ITU 2019). This new system will rely on two options. The first is to have bigger masts. This possibility is going to raise concerns because it is easier to take notice of a huge installment. The second option to have more and more small RBS. How does this evolving scenario connect with social insurgency?

The great difference between Brazil and other countries is the absence of an effective organized civil society focused on the harms of mobile phone masts. This is not to say that there are no associations at all. There are national consumer associations (strong ones, we may say), as well as residents' associations, that are also active in this area. However, none of them has managed to conquer the nationwide political or media space needed to campaign effectively against masts, like happened in the United Kingdom. The Brazilian Association for the Protection of Concerned Residents and Users of Cellphones (ABRADECEL), which is devoted to the theme, does not even have a website and gets very little media coverage. They do indeed exist. However, they were unable to establish a nationwide movement or occupy the kind of space in the media that was so important in the British case. The Brazilian case shows a struggle between state agencies and officials over administrative powers rather than a social dispute conducted by the citizens. One can look to the Brazilian case and infer that the issue of the risks posed by mobile phones – and also their use and limits – is not part of the country's political and social universe. It is

a complex subject that – reflecting many other telecommunications debates – attracts the attention of the experts while not captures the gaze of the whole population.

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