

# Climate Change, Intellectual Property, and Global Justice<sup>1</sup>

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**Abstract.** The current situation of climate change at a global level clearly requires policy changes at local levels. Global efforts to reach a consensus regarding the reduction of greenhouse gas emissions have so far been focused on developing Climate-Friendly Technologies (CFTs). The problem is that in order for these efforts to have an actual impact at a global level we need to be concerned with more than just promotion and info-dissemination on the already existing CFTs, but also with costs, implementation and the international intellectual property and trade system necessary for this strategy to work. Currently, almost 80% of all patent applications belong to OECD countries like Japan, US, Germany, South Korea, Great Britain and France. The obligations climate change imposes on developing countries represent a technological shift that depends on Technology Transfer (TT) and implementation of IP laws. The current IP framework, especially patent law, copyright and trade secrets produces another kind of obligations. The main question is if the conjunction of these two sets of obligations (rules) is fair from a global justice point of view. Also, it is questionable whether this conjunction helps developing countries to produce their own CFTs. When discussing the demands of global justice one cannot skip the very important distinction Pogge makes between negative and positive obligations. In the context of global warming and the measures that the world's states ought to take to prevent it, there seems to lie another conjunction between the positive obligation of preserving the natural environment that we all share and a negative obligation of allowing the less developed countries to help us all do so. Because one cannot impose regulations that cannot be put into practice, it is more and more obvious that a new framework of action and development needs to be drawn in the field of TT of CFTs.

**Key words:** global justice, climate change, Climate-Friendly Technologies, intellectual property, patents, institutions, public good.

There is a new tendency in the current discursive techniques that account for globalization and its effects, one that distinguishes itself from the global market imperative and that tries to overcome the large inequalities it has imposed on developing countries. Rather than maintaining the old North-South exploitation scheme, these proactive universalizing forces seek to transform it by offering trans-local alternatives to the a priori theory of market globalization. This is called justice globalism and it is structured as a network of networks intertwined to address the social contradictions regarding global capitalism. Due to its open-endedness in scope it offers a large area of multi-access points like environmental issues or human rights issues.

In this paper we are going to explore this network, accessing it through what we believe is one of its most vulnerable points nowadays - that is, the conjunction between the obligations of climate justice and the international intellectual property laws (or régime). We will explain why and how climate change translates into climate justice, why this is a meta-imperative to live differently in both North and South, and why this imperative is currently unachievable especially due to the legal framework of IPRs worldwide.

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It is well-known that industrialized countries are mostly responsible for the current worldwide concentration of greenhouse gas (GHG) emissions and the effects they have on the global climate. Human activity has increased the concentration of carbon dioxide and other GHGs ever since 1750; in fact, the charts show that in the pre-industrial era the concentration of GHGs was 100ppm lower than it is today. It is also true that natural sources of carbon dioxide are 20 times greater than those due to human activity, but the Earth had its own way to balance them. Increasing the natural concentration of GHGs had a considerable impact on the Earth's climate and thus on many physical and biological systems.

This impact of anthropogenic warming on the earth's natural environment will unfortunately be felt firstly by the low-income peoples of the world. According to the IPCC report of 2007, urbanization and industrialization already put a lot of pressure on the natural resources in new and emerging economies; the pace imposed by the global market being far too alert, their capacity to adapt and to develop in an environmentally, economically and socially sound way is relatively low. The UN Human Development Report of 2007 also recognizes that developing countries will be the first to suffer from it and in the highest amounts, although they contributed the least to the current deterioration of the climate. It is due to these asymmetries that we are now faced with the necessity to rename the climate problems of global warming and call them global justice problems, namely climate justice.

So what does climate justice actually bring to the table that is new? Its discourse is mainly scientific, we roughly know what to expect, we know what the causes are, global warming is measurable and so are the GHG emissions, so it is basically explicit knowledge which makes its discursive potential in policy matters a rather strong one. But climate justice is also about politicizing the origins of the climate crisis because it addresses the question of who has something to gain from the emissions and who bears the responsibility for mitigation. Recognizing the difference between industrialized nations and developing countries regarding their capacity to reduce GHG emissions, climate justice is basically about numbers and principles and about admitting the fact that capitalist growth was built on a carbon economy.

#### I. DIFFUSION OF CFTs AND IPRs

There has been a tremendous recent effort in establishing a consensus on the role developing countries should play in GHG reduction. The development of new CFTs and their dissemination at a global scale is the main measure to take to stabilise greenhouse gas emissions in the atmosphere, which makes technology the main hot-spot in discussions that followed the Post-Kyoto regime. The debate regarding the policies that need to be implemented has a few neuralgic points, one of them being the fact that, although CFTs are being developed in developed countries, their adoption in fast-growing and emerging economies is compulsory and urgent. Developing countries are currently the main

producers of GHG emissions but their ability to reduce them is constrained by limited financial resources, weak regulatory institutions, and the perception that they should not have to bear the costs of mitigating a problem primarily created by industrialized countries.

In other words, CFTs dissemination at a global scale faces numerous economic and policy difficulties because, on the one side, developing economies cannot bear the financial costs of adaptation and implementation alone, and, on the other, private developers refuse to give up too much of their IPR-protected information. Research in economic theories of technology diffusion shows that there are a great deal of policy levers that can be used to speed up the diffusion of CFTs in developing countries. However, the solutions may not be equally appealing to both sides. Investigations regarding tech-diffusion on an international level echo those at national levels, and they clearly show that, even if CFTs that lower production costs and diminish GHG emissions can be transferred (although they usually require additional adaptations), their diffusion can still take anywhere from 5 to 50 years – an enormous amount of time. This is due to several differences between developing and industrialized countries regarding human capital, infrastructure, prices, learning by doing, institutional factors and lack of or lax enforcement of formal regulatory pressure.

Allen Blackman offers a few policy prescriptions with regard to CFT diffusion, considering the lack of a guarantee that new technologies that have successfully been developed and diffused in industrialized countries will diffuse as widely or rapidly in developing countries, or that they will diffuse at all (Blackman 1999, 10). According to Blackman, in order for these technologies to be successful, they need to be “appropriate” to developing countries. Firstly, information on new technologies is a key point of the diffusion, but it is likely to be imperfect or unreachable, which is why he proposes the subsidies method for activities that improve information flows, such as demonstration projects, testing and certification of new technologies or consultancy services. Secondly, he emphasizes the fact that environmental regulatory taxes and other forms of formal or informal constraints, even reduction or abolition of energy subsidies, might be an incentive for the dissemination of energy saving technologies and CFTs. Thirdly, he raises the problem of investment in RD and human capital and infrastructure, noting that intellectual property restrictions do indeed have countervailing effects on the diffusion of new technologies, because although intellectual property does stimulate RD, it stimulates the already existing markets rather than keeping an open access system in new and developing economies. Moreover, IPRs attach significant additional costs to the existing CFTs and make their adaptation almost impossible as almost all the technical information on them is under patent law.

Ricardo Melendez Ortiz, chief executive of International Centre for Trade and Sustainable Development (ICTSD), suggests a parallel between technology transfer in the CFTs domain and the issue of access to medicines (2009, vi). He goes on to say that “a declaration comparable to DOHA in the case of IPRs and climate change may

be useful in the progressive development of international law so that it properly balances the rights of innovators and access by the public to the benefits of environmentally sound technologies” (innovation and tech transfer to address climate change ICEDTS issue no. 4), emphasizing the urgent need for further evidence-based analysis to inform current discussions on climate change, technology transfer and IPRs.

When discussing the problems imposed by patent law with regard to green technologies, we are actually referring to the difference between those for whom IPRs become a *problem of livelihood* and even survival, and those for whom they simply assure a *certain (upper) living standard*. Intellectual property is a legal construct that protects (by control) different types and sources of knowledge, and different countries have formulated different regimes of protection for IP. These different regimes can affect both the use of knowledge and its development, in the sense of knowledge applied for innovation. IP law decides what can be patented, what these rights of IP are, how they are granted, who can receive them, what their purpose is and for how long they are available. Many of the legal aspects of IP have been the subject of lawsuits. Moreover, property rights, IP included, are not absolute; there are situations in which public interest should prevail and so legislative changes should be made. The question is how can we update the IP regime so that it will reflect the actual socio-economic circumstances at a global level? After all, we must not forget that one of the purposes of IP law is to represent a social convention meant to promote and sustain social welfare, defined as both access to and participation in the production of knowledge.

The form of IPR usually associated with innovation in the field of technology is the “patent”. It consists of a bundle of rights granted to the inventor to exclude third parties from making, using, offering for sale, selling or importing the patented product, using the patented process or importing a product made with the patented process for a period of typically 20 years from the filing of the patent application. A patent is granted to the first person that makes an invention, allowing this first person to exclude subsequent inventors of the same product or process from the market, even if those subsequent inventors had no knowledge of this first person’s activity and even if they finalized their invention the day after this first person. The second form of IPR customarily used to protect technological information is the “trade secret”. Trade secrets protect confidential commercially valuable information that its holder has taken reasonable steps to protect from disclosure. Trade secrets may take many forms, including customer lists, recipes and computer software design. Unlike the patent, trade secret protection has indefinite duration and it does not require disclosure of the invention even if it may be relevant to the public.

These hard forms of IPRs, that are usually joint to better protect a certain invention or innovation, are due to a key policy assumption: that it is only by providing the possibility of a significant financial reward in terms of market exclusivity that you can encourage investment in innovation, thus leaving the process of deciding where and how innovation

should take place in the hands of private investors and outside the grasp of governmental institutions.

According to Schumpeter (1976, 45) there is no higher virtue of a prosperous market like its capacity to stimulate innovation; capitalism is therefore based on the dynamics of technological advance. But the experience of the past 30 years demonstrates that there are no optimal solutions to assure Schumpeterian competition. Certain fields seldom receive more funds and interest for research than others do, and, although competition is essentially one of the most powerful stimulants for innovation, this cannot mean we can translate “the competition for the market” into “competition inside the market” – this being exactly what international agreements on IPRs are doing.

## II. THE INTERNATIONAL RÉGIME OF IPRs

The World Trade Organization agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), which introduced IPRs into the international trading system and remains the most comprehensive international agreement on the topic, is of particular interest and concern in ongoing discussions of the transfer of climate-related technologies. Under the false pretenses that it assures competition inside the market, TRIPS actually closes the market for new-comers by protecting sources of knowledge that used to be open and by blocking the route early industrializers had taken to get where they are now; such international agreements enlarge the spatiotemporal coverage of the monopoly and force the states to get more and more involved in protecting them. In other words, Schumpeter was wrong to say that monopolies would inevitably be temporary. Companies have, nowadays, both the incentive and the legal instruments to assure their monopolies and destroy their competitors.

Written and proposed by “the twelve” (i.e. a list of companies: Bristol-Meyers, CBS, Du Pont, General Electric, General Motors, Hewlett-Packard, IBM, Johnson & Johnson, Mosanto, Pfizer and Merck) (Sell 2003, 67) TRIPS is the best example to illustrate the increasing role of private power in international politics. With it, the industry proved to have the means and the power to identify and define IP as a problem of trade, to offer a solution, and to reduce it to a concrete proposition in order to then sell it to governments. There are several essential critiques one can formulate against TRIPS. Susan K. Sell identifies four of them: firstly, TRIPS is a mirror of what the twelve members of the Intellectual Property Committee wanted the legal framework of IPRs to look like globally. Secondly, the agreement is based on a controversial definition of IP, *one that favors protection rather than dissemination* and the claim that this particular way of defining IP will sustain global economic development has not been certified yet (Sell 2003, 59). Thirdly, the uniform standard it imposes on all the member states of the WTO and the “one size fits all” policy are highly doubtful and disputed. And fourthly, TRIPS only refers to the rights of private actors and not to the goods in question, and it fails to circumscribe an area for acceptable

politics, but obliges governments to take positive action to protect IP according to the same legal standard worldwide.

However, it is generally assumed that much of the foundational technology of the CFTs field is well known. Just like the basic idea of using wind to turn the blades of a turbine that generates electricity is common knowledge that evolved from an ancient history of using water and wind to turn waterwheels and windmills to grind grains into flour. The problem is usually wrapped around the ways to improve the efficiency of such mechanism, to adapt them to a certain environment or to find the adequate materials according to that particular environment, or, to put it differently, it has to do with technology transfer. The financial advantages that accrue to technological “first movers” may become embedded by different mechanisms than patents alone, such as agreements among potential competitors to share markets. Although the assumption was that patents would be used as a mechanism for market allocation, they tend to develop in the opposite direction as conceptually, market entry by third parties would otherwise be much more permeable.

According to the Draft International Code on the Transfers of Technology of 1985, “transfer of technology” (TT) can be defined as the transfer of systematic knowledge for the manufacture of a product, for the application of a process, or for the rendering of a service. It thus involves more than the simple transmission of hardware, but also requires facilitating access to related technical and commercial information and the human skills needed to properly understand it and effectively use it. The domestic capacities to absorb and master the received knowledge, innovate using that knowledge and commercialize the results are critical aspects of the TT process. In this context, the existence of IPRs is again a source of controversies because it is potentially both an incentive and an obstacle. Dominique Forray (2009, 19) emphasizes the fact that the complexity of TT is based on the different development levels between the two parties of the transfer, on the very intricate conceptual distinction between information and knowledge and on the institutional inadequacies met when shifting the locus of decision-making to local agents.

Determining the role of IPRs in the transfer of climate-related technologies in the context of the UNFCCC is not proving any easier. The UNFCCC and the Kyoto Protocol contain specific commitments on technology transfer. Article 4.5 of the UNFCCC urges developed country parties to take all practicable steps to promote, facilitate and finance the transfer of, or access to, environmentally sound technologies and know-how, particularly to developing countries. Article 10 of the Kyoto Protocol reaffirms these commitments. Developed country parties are also required to provide the financial resources needed by the developing country parties to meet the agreed full incremental costs of implementing their obligations, including for the related transfer of technology. Technology is needed in developing countries both as an engine of development and to help blunt the impact of growth on global climate change.

### III. GLOBAL JUSTICE AND INSTITUTIONS

In the first part of this paper, we tried to see what is happening when the demands/obligations of climate change and the rules of intellectual property collide. It is a short list of implications that can be expressed as follows:

(1) Climate change *implies obligations* to action on reducing GHG and producing CFTs.

(2) CFTs, like many other technologies, *implies* the obligations of IP, i.e. *protection by patents*.

Therefore, (3) climate change implies at least one form of IPRs protection, the patent.

The debate around climate change and climate justice could not neglect the prominent role of patents in knowledge control. The proactive implication of climate change - CFTs' creation - is bound to a system of allocating resources which is highly criticised from the point of view of fairness. As we have showed in the previous section, technological transfer (TT) is a thin palliative for intellectual property enclosure and we cannot rely on it to sustain environmental change.

In Nagel's vision on global justice (2005), intellectual property is one of the *institutions* we have to watch and improve if we want to acquire impartiality and genuine equity at the global level. The role of institutions in realizing global justice is paramount; but to make it happen, it must be grounded in a non-arbitrary, widespread and acceptable (by majorities in privileged nations) *political conception of justice* (Nagel 2005, 126), in opposition with the cosmopolitan view of justice. Nagel proposes a derivative kind of political conception with special features.

There are three families of international institutions: for human rights protection, for provision of humanitarian aid and for provision of public goods (Nagel 2005, 136). Intellectual property and environmental protection are part of the latter, so their intentionality (by design) is to provide the public good. Institutions on global level "put pressure on national sovereignty" (136) with their claims of democratic legitimacy and socioeconomic justice. Therefore, a classical dilemma arises: developed nations want more global governance by these institutions, but they are less willing to follow the obligations and demands subsequent to it (136).

In our global economy, Nagel asserts, we need a stable "system of property rights and contractual obligations" to keep the flow of commerce alive (2005, 137). This system is a network of institutions (imposing obligations upon states and other actors), and people all over the world are connected by this institutional design (137). This is one of the core ideas of Nagel's vision on global justice: not only are the states and other big constituencies part of the network of international institutions game, but *each world citizen is linked to others* by this normative network. It is a fact we must accept: the flow of goods, services, ideas and capital is borderless and touches each citizen beyond her/his will or knowledge.

We are bound to this network, and the problem is that we are bound at its periphery. To quote Nagel again, international institutions “are not collectively enacted and coercively imposed in the name of all the individuals whose lives they affect” (138). Between the individual level of political reality and the international level are the states, which demand and impose the kind of action the international institutions could do. Global justice is limited to nation-states and individuals are not *de jure* members of the continuous political bargain negotiated on a global level.

#### IV. HOW TO SHAPE INTELLECTUAL PROPERTY INSTITUTION?

Intellectual property is a set of obligations, permissions and interdictions in respect to the creation of knowledge (artistic, scientific or technological) and the flow of information. This set is always *contingent* and, from an epistemic point of view, always *undecided* (it is impossible to verify or to falsify it). The contingent character must be explored to understand why IP as an institution will always be under scrutiny and why its rules evolve (or must evolve by an artificial, societal selection) at the same pace with the realization of fairness and justice at the national and global level. The question is if the aim of IP is taking the same path as the purpose of global justice. Given the current state of affairs, the answer, unfortunately, is a negative one.

The development of intellectual property laws is the result of “compromises and contingency” (Sell 2001, 496); intellectual property is not a transhistorical concept (Sell 2001, 473) - it is a historical construction (and also geographical) produced by a continuous struggle of forces like mercantile interests, domination positions, ideologies, and technologies. The environmental policies (under the threat of climate change) are also historical constructions; the difference between the two institutions is on the level of justification. For IP as “property” the justifications were unhistorical, essentialist and aprioristic; climate change is a matter of debate and arguments from the historical point of view (not only the *present* environmental situation is taken into account, but also the problem of *future* generations) and we emphasize the contingencies (that is why the technological progress is expected). The long history of IP is often downplayed just to focus on the current state of affairs. For the climate change discourse, the history of climate is a fundamental matter for empirical arguments (e.g., the GHG emission is observed *in time*).

The official mantra of WIPO and Western nations is that IPRs are “the key economic resources of the future” (Sell 2001, 468). The conceptual problem behind this punchline cannot be ignored: there is no consistent international system of IPRs - i.e. it is full of contradictions -, the definitions cannot pass logical tests and the scope of IP is uncertain. This uncertainty reflects upon the trade system and upon incentives for innovation. The practical problems of IPRs are manifold and studying all of them is beyond the scope of this paper, but a global analysis is compulsory to see how they can be circumvented in the future. Peculiar to IP is the tension between protection (& exclusion) and dissemination



(& competition) (Sell 2001, 468). This tension is a great source of debate and contestation, as the not-so-short history of IP proves each time we interrogate it. A strong form of contestation arose under the *Ancien Régime* against the *privilegé du Roi* offered only to several book printers and sellers. The contestation of this monopoly took the form of book piracy and informal networks of communication, like rumors - both illegal. The French language conserved the linguistic fertility of that era still using terms like *craque*, *mauvais propos*, *bruit public*, *on-dit*, *pasquinade*, *canard*, *libelle*, *chronique scandaleuse* in the oral discourse and this could be a sign that the original tension between privilege and free speech is not totally out-of-date. The Statute of Anne (1710), the first copyright law in history, was the result of a collision between authors and publishers and also a form of contestation against royal intervention upon the market of ideas, opinions and critique. In the USA, from 1850 to 1875, there was a tension between those defending the protection of innovation by patents and those demanding an international system of free trade (Sell 2001, 483). TRIPS and the new proposal of Anti-Counterfeiting Trade Agreement are maybe the most contested commercial agreements related to IP. With TRIPS, the world saw the establishment of an international regime of IPRs, a movement which emerged in the 19th century with the Berne Convention. Can this history of contestation break down and be replaced by a “cosmopolitan peace” over IP? To be sure, it is not possible to break the dialectical movement of IP (Sell 2001). And, also, it is not desirable.

The process of institutionalization of IP has many phases (Sell 2001, 468) and it will never reach “the end of history.” It is driven by ideological shifts and technological change (Sell 2001, 468), and this dialectical movement brings to power those who can control technologies and public speech. This leads to a classical observation about IP: in opposition with physical property, for which one condition is the scarcity of resources, IP is a construct made to generate *artificial scarcity*. Knowledge and information are not scarce resources – firstly, because they are beyond consumption; secondly, because they can accumulate indefinitely and produce positive externalities. In the 1960s, there was a debate between Arrow and Demsetz about the market efficiency of information (understood in a broad sense, from data to knowledge). From the welfare point of view, asserts Arrow, any new information “should be available free of charge” (1962, 616-7). This will generate *optimal* use of information, but no incentives to research and to produce any new piece of information (like the CFTs in our case). Therefore, we have to impose an artificial scarcity of information, which is suboptimal, but efficient from the innovation point of view. The institutional arrangement this artificial scarcity brings about is an “imperfect” one (Demsetz 1969, 1). But, as Demsetz puts it, what is more important: to keep comparing the imperfect institution with an ideal norm (in our case, offering CFTs “free of charge” for developing countries) or to choose from different real and practical institutional arrangements? Avoiding the “nirvana fallacy” (Demsetz 1969) under IP & environmental policy conjunction is difficult, but not impossible, as we will show at the end of this paper.

Sell and May establish three perspectives on IP: realist, functional and critical (Sell 2001, 469-74). The realist perspective is limited to only one kind of powerful actors: the states. Those actors act monolithically under this perspective, which neglects the emergent groups and the struggle between the old groups in power and the newcomers (Sell 2001, 470). The functionalist perspective is holistic in nature: it accepts that there are institutional arrangements produced by settlements, but it fails to see the interest, power and ability of actors behind them (Sell 2001, 470). Functionalist theories, like Demsetz's, emphasize the role of efficiency in establishing property rights and ownership (not only on tangible assets, but also on ideal objects) and set into this efficiency (inside the market) the regulatory condition for the institution of property. The problem with functionalism is that it "begs the question" (Sell 2001, 471): who defines efficiency, from what point of view, in what dimension and for how long? For a functionalist, property's role is to foster coordination between individuals. However, what is efficiency when coordination is impossible? In the case of information, what is efficient from the welfare point of view is the lack of IPRs (with free dissemination and competition of building new information on common resources). Efficiency for the "owner" of information is acquired by protection and exclusion (the control of information) through IPRs (Sell 2001, 471). Functionalism fails to see the real struggle for control and dissemination in informational resources wars, and thus it cannot take into account the two different efficiencies (or expectations of).

The critical approach, in which our essay is inscribed, looks at the interaction "between ideas, material capabilities and institutions" (Sell 2001, 473). The legal construction of IP is just an actor in this general game of informational resources; technologies are also important along with creators/innovators. The institution of IP is linked to other institutions (as in Nagel's vision of institutional network), technologies are built on other technologies and the creators are part of a long history of the instantiation of ideas.

Institutions like IP consist of a set of rules which impose deontic constraints on different agents in several contexts. All statements about intellectual property, equal access and information responsibility can be expressed in a structure of deontic, action and epistemic terms (van den Hoven, 2002). Patents, for example, are *a right* to exclude the use of information by the others (so they impose obligations on others not to use the information), but also *an obligation* to make information public (so they also set permissions to access information). The action of exclusion and the action of publicity are related to information; the relationship is always between two agents: the information haves and have-nots. In this network of obligations and permissions, some actors are winners and the others are losers.

The question to answer in the last part is: why not oppose IP obligations to equal access obligations under a global justice demand? How can we do this while also avoiding the "nirvana fallacy"?

### V. A FAIR SOLUTION: CFTs AS PUBLIC GOODS

The problem of access to CFTs is not isomorphic with the problem of medicine access in developing countries, but an analogy could help to seek the solution to CFTs access for developing nations. According to Pogge (2010, 144) the Lockean natural right of appropriation, though considered the friendliest philosophical tradition to the global intellectual property rights system, actually fails to be consistent in this exact case. The inventor may initially seem to be like the person who, by mixing his labour with a previously unowned object or resource, while leaving enough and as good for others, is now entitled to call himself owner of that object. But, in the case of patent protected objects, the inventor is preventing others from doing exactly what he did, simply because he was the first to do so. While supposedly this does not infringe upon their access to such resources, it does take away their freedom to use them in the same way, and, by mixing their labour with those resources, to acquire what they themselves have legitimately obtained.

Using this failed application of the Lockean natural right of appropriation, Pogge explains why the best way to level pharmaceutical prices is to take a turn and, instead of imposing unjust monopoly prices on the poor, find a way to grant open access at competitive market prices to both the poor and the affluent. To do so, he proposes the public funding solution through push and pull programmes that should be funded by governments and further suggests to treat health impact rewards as public goods. Moreover, he says complementary funding should be global rather than national and should fall under an international agreement strong enough to impose the public goods perspective on such patent applications worldwide. We believe that this is a very strong argument that can also be applied to other types of patent applications and that, especially in the CFTs sector, could help level the market inequalities that may arise.

In a biased study done by John Barton in 2007 on several CFT industries (photovoltaic, biofuel and wind energy), the Stanford researcher observed three different problems on the CFT market, but none of them, in his vision, incriminated the IP institution of patenting (Barton 2008). Barton begs the question when he tries to explain that the tariffs are barriers, not the IP - the tariffs are a by-product of patenting. Otherwise, he acknowledges the asymmetry between developed countries capacities in CFTs (production and export) and the situation of developing countries. According to Barton, patenting is a problem for CFTs only in business-to-business procedures, i.e. "patent fights" between companies in the same industry. He ignores the social effect (in terms of costs) and the chilling effects for innovation of patenting. For example, the wind sector is based on patents even though the technical concept (the windmill) lacks novelty and it is so obvious. In this case, the patents are a barrier for other companies entering the market and this is highly artificial, the wind technologies being obsolete innovations open only to incremental improvements. The cases of photovoltaic and biofuels are more complex and they deserve a special discussion.

The other two problems of CFT industries are the market concentration and the big subsidies from the state (Barton 2008). Fighting against the market concentration is first of all a national public policy endeavour and we will not assess it here. But the problem of big subsidies could be in fact converted into the solution for CFTs from the global justice point of view. As Barton observed, national states are encouraged to support the companies that produce CFTs through financial subsidies and heavy regulation (e.g. obligation to use a certain percent of their total energy from renewable sources). The cost of research is also socialized and the profit privatized: companies use public research funded by the state and enclose it under IP laws. The effect is a bigger gap among nations.

In respect to these findings, i.e. the development of CFT is socialized, but the profit privatized, is it not possible to argue for a public good approach in this case? Can the developed states renounce their “national favoritism in licensing publicly funded inventions” (Barton 2008)? If we accept Pogge’s position - “responsibility is negative - to stop imposing the existing global order and to prevent and mitigate the harms it continually causes for the world’s poorest populations” (Pogge 2001, 22), then we can ask developed countries to stop imposing the actual patent institution and to refrain from national favoritism in the case of CFTs. Those are mainly publicly-funded technologies, public goods supported by all citizens. A second line of this argument comes from Nagel’s idea of citizens’ network: each world citizen is linked to others.

A global public pool under an international agreement for developing and spreading CFTs could bring the just measure back into climate change obligations. Seeing CFTs as public goods (non-rivalrous and non-excludable) is a better way than the compulsory licensing alternative because it allows the creation of an international agreement that would impose a stronger perspective on the necessity of their development and application, while also better dealing with the financial mechanisms involved in the process of creation and dissemination. By doing so, we could manage to escape the disadvantages of allowing an arbitration court to deal with the proper price of the invention and develop better and internationally sound push and pull programmes to obtain public funding in the CFTs field of research.

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