

# Justifying pro-poor innovation in the life sciences: a brief overview of the ethical landscape

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This is a “post-print” accepted manuscript, which has been published in:

“The ethics of consumption”

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Please cite this publication as follows:

Timmermann, Cristian. 2013. Justifying pro-poor innovation in the life sciences: a brief overview of the ethical landscape. In *The ethics of consumption*, eds. Helena Röcklinsberg, and Per Sandin, 341-346. Wageningen: Wageningen Academic Publishers.

# **Justifying pro-poor innovation in the life sciences: a brief overview of the ethical landscape**

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## **Abstract**

An idea is a public good. The use of an idea by one person does not hinder others to benefit from the same idea. However in order to generate new life-saving ideas, e.g. inventions in the life sciences, a huge amount of human and material resources are needed. Powerful, but highly criticized tools to speed up the rate of innovation are exclusive rights, most prominently the use of patents and plant breeders' rights. Exclusive rights leave by nature a number of people empty-handed, with starvation, stuntedness, prevalence of disease and death as preventable and quotidian consequences. To stimulate a human rights compatible use of exclusive rights a wide range of moral frameworks have been developed to condemn current praxes. Most prominent in the debate are theories building on (1) utilitarian calculations of weighing benefits with Peter Singer as a prominent advocate, (2) Pogge's vindication of compensatory duties for institutional harms, (3) a comprehensive analysis on how the current innovation incentive system fails to secure human rights and human capabilities and lastly (4) showing how the status quo nurtures misrecognition. With help of those theories modest targets as well as a thorough restructure of the innovation incentive system can be justified. Those theories have the mammoth task of restraining well-established ideas supporting the permissibility of a reckless use of property rights that are deeply anchored in the property law discourse. Life sciences raise a range of special problems when justifying pro-poor innovation. Healthy people living in a society with a good sanitary infrastructure need far less resources to tackle health problems than people in places with a poor infrastructure. Patents that involve gene sequences (or part thereof) make inventing around impossible, making the seeking of licenses mandatory for investigators wanting to make follow-up research with the molecule. Speedy sharing of data concerning public health hazards or threats to food security are vital to maintain living standards.

Keywords: global justice, intellectual property, benefiting from science, human rights

## **Introduction**

The principle of progressive realization of all human right is one of the most fundamental principles in human rights law. A steady rise in life expectancy has been observed all around the world since World War II. Multiple factors have contributed to this remarkable achievement, the rapid development of the life sciences one of them. However, since the beginning of the 21<sup>st</sup> century and for the first time in decades, not war but disease has lowered the average life expectancy in a number of countries (cf. World Health Organization, 2012). The AIDS pandemic in the present and most likely climate change in the future are serious hurdles for continuing increasing average life expectancy. Some states are in such a dire situation that the label 'developing country' does not reflect current realities. The term 'retrogressive society' would be more suitable to describe those nations.

Despite those negative scenarios, we should keep in mind that the last 70 years have also been an epoch of highly laudable achievements, both in medicine and agriculture. Yields in agriculture have increased by over 130% in the last 50 years (Baulcombe et al., 2009). Even taking into consideration the horrendous levels of hunger and malnutrition, we can proudly say that the earth is feeding many more people than ever before in history. Some diseases have been eradicated completely – polio a well-known example. A continued homage to this optimism demands an acceleration of the innovation rate coupled with a strong orientation towards the needs of the poor to counter current global problems.

The reduction of average life expectancy in some countries is a clear sign that one of the most sacred principles of human rights law, the principle of progressive realization, has been violated, demanding urgent response. Scientific and technological innovation, being a key element in advancing welfare in the past cannot exempt itself from this call for action.

### **Innovation and Cosmopolitanism**

Science has been bound to serve human needs from its very beginning. The freedom scientific curiosity had to blossom has been in various degrees undermined or encouraged, often but not necessarily reflecting the level of societal welfare. Global justice demands a wider inclusion of the group of people science has to be at service at and thus, in a world of limited resources and dire needs, also undermines the freedom to practice science following mere curiosity or to develop products that allow lavish exploitation. Putting science at the service of the poor has to be however justified. Therefore I will explore some prominent ethical justifications to conscript science to social welfare, those are:

*Weighing benefits.* The extra euro given to a person  $x$ , will benefit the person who earns an euro a day substantially more, than the one given to a person who earns 100 euros a day. In this simplest form, this fact is reason enough for a thinker like Peter Singer (1993) to favour the poorer person as the recipient. The most efficient use of resources in the pursuit of welfare maximization would demand that resources are given to those who can transform them into well-being most efficiently. A person who reached a certain level of welfare is increasingly, one could even argue exponentially, less efficient in transforming resources into well-being. Under this line of thought Peter Singer condemns the research and development needed to produce an additional shaving cream for an already saturated market while some dread diseases hardly find research money at all. Hereby Singer has developed a strong argument for shifting research money to investigate problems that affect the poor, as well as the necessity of research having an effect on the promotion of social welfare.

*Compensatory duties.* The global institutional design lacks democratic legitimacy and brings substantial disadvantages to the global poor while benefiting the wealthiest inhabitants. This, argues Pogge (2008), is enough to amount as a violation of the negative duty of not imposing a harmful regime on others. Such a violation leads to compensatory duties that create the obligation to establish institutions whose positive effect outbalances the negative effects of the current institutional order. Pogge's most prominent example of one of such institutions that should be in place (among others) is the Health Impact Fund (Hollis and Pogge, 2008). While focusing on medicines, the mechanism advocated by Pogge aims at targeting both the availability of medicines for the poor as well as securing accessibility.

*Basic needs.* The doctrine of basic rights, prominently discussed by Henry Shue (1996) recognizes that some needs are essential to be able to enjoy other rights. The freedom from hunger and disease are two examples. This doctrine aims at securing those fundamental

entitlements, standards that are still well below of what is protected by international human rights law. The level of health targeted by article 12.1 of the International Covenant of Social Economic and Cultural Rights (1966) and the official commentaries thereafter clearly state that there is not only a right to health in the sense of freedom from disease, but that everyone has the right to the highest attainable standard of physical and mental health – a standard well above that which is protected under the doctrine of basic rights. Similarly, the right to food is not solely seen as freedom from hunger, but as a right to adequate food, specifying herewith that the available food has to be also culturally acceptable. The threshold line of when basic needs are met is clear: the moment you are able to play a constructive role in society. If the assigned role is the one the individual had in mind or not, is irrelevant for this doctrine. Important is the fact that she can physically do so, if she has the desire to fulfil the task. Clearly this is an ethic of extreme scarcity or in situations of emergency. Especially in relation to food, as Amartya Sen (1981) famously demonstrated, we do not live in a world that has to abide to such rough principles. Not scarcity but misdistribution is the main cause of hunger. In sum, according to this doctrine, objects of innovation that are vital to ensure the very basic needs should be made widely available.

*Human rights and capabilities.* Securing basic needs alone is not seen as sufficient, for either the human rights or capabilities discourse. The latter two have similarities; objects secured by human rights are often also targeted by capabilities theorists. Martha Nussbaum (1997) has shown that many of the central human capabilities she has identified have their correlates in human rights law. Those two discourses demand a series of positive and negative duties to ensure the minimum needs and basic securities to be able to lead a good life, and both guarantee those rights to all human beings in virtue of their human nature. Arguably, we can say that both discourses seek to secure the fundamental freedoms for people to be able to pursue their image of a good life. The catalogue of freedoms guaranteed is drafted (or should be drafted) according to democratic principles in order to give shape to the global society as agreed upon. Signatories to both international treaties, the International Covenant of Civil and Political Rights and the International Covenant Economic, Social and Cultural Rights, as well as capability theorists, acknowledge that if everyone should be able to work towards her ideal of the good life, individuals and states have to not only refrain from certain actions (i.e. abide to series of negative duties) but are also required to contribute to securing other people's needs (i.e. fulfil positive duties).

Allowing certain freedoms to pursue one's image of a good life and at the same time granting some powers to shape one's environment has a far stronger impact on the liberty inventors enjoy in using their exclusive rights. Here a much wider set of rights, e.g. the rights to participate in scientific and cultural life, to food, to health, to self-determination, to education, and to enjoy the benefits of science, have to be balanced with intellectual property entitlements.

*Recognition theories.* A key aspect of recognition theories is stated in Hegel's memorable words "they recognize each other as mutually recognizing one another" (Hegel, 1807/1970). Not surprisingly, this passage has led to countless interpretative scholarship, identifying in this statement that action leading to recognition has to be simultaneous, reciprocal, transitive, reflexive and symmetrical (Limmer, 2005). Coming out of this tradition, contemporary recognition theorists restate the importance of being able to mutually influence each other and condemn relations of unnecessary dependency. Thereby also advocating measures that lift people from this situation of dependency, e.g. by building-up scientific capacities and making research enterprises more inclusive. This tradition also objects failing to acknowledge

contributions of a particular origin (i.e. traditional knowledge) while other types of inventions and discoveries are given full credit by the scientific community.

*(Re)claiming the commons.* The argument made in this discourse is predominantly based on principles of fairness. Inventions rarely come out of thin air, typically one relies on what previous researchers have observed, catalogued, invented and discovered. Further innovation builds up on what is freely available for use. When knowledge, or nowadays biomaterial, is enclosed by exclusive rights, innovation becomes more expensive and for almost every individual also restricted. This has led a series of scholars to defend the public domain and common pool resources, to ensure that future researchers (but also artists) have the building blocks to continue to innovate (Boyle, 2008), hereby stating both future social welfare and creative liberty as objects in need of protection.

Maintaining the commons is justified under different philosophical traditions. The Lockean proviso of leaving enough and as good to others is one of them. Fairness demands from researchers an adequate social return for the infrastructure and scientific development opportunities provided by the taxpayer.

*Cooperative justice.* It might be safe to say that if every individual in the developing world completely ignores intellectual property rights in every single aspect of daily life, the global enforcement of such rights by the developed world alone would be prohibitively expensive. Even though intellectual property rights as they are currently in force disproportionately advantage industrial countries, we rely on the enforcement and recognition of those rights by people who hardly or don't benefit from their global implementation. Principles of fairness demand thus a fairer distribution of burdens by having this global incentive scheme in force (cf. Timmermann, 2013).

### **Denied access to innovation**

Research and development in the life sciences is predominantly incentivized by using intellectual property rights; particularly patents. As society grants innovators temporary exclusive rights, it makes the recouping of research and development costs possible, provided those costs were reasonable and the product developed can be sold and finds a large enough market.

Since the second half of the last century however, those exclusive rights are less referred to as privileges and more seen as property entitlements. This change in terminology resulted in exclusive rights being perceived as stronger than previously acknowledged. The aforementioned ethical theories have now not only to combat rights conceded for instrumental reasons, but also deeply anchored notions of property rights. Under the latter, we have Lockean labour theories that justify property as a form of desert and Hegelian conceptions that link property to personality ties.

### **What makes life sciences special?**

Exclusive rights over uses of genetic resources have a different effect on innovation and accessibility than patents in other fields of research. Some peculiarities are:

*Impossibility to invent around.* Patents also foster innovation by encouraging inventing around a patented invention in order to not having to rely on a license granted by the patent

holder. The idea is that a patent should not block further innovation but encourage other researchers to offer products that are similar but different enough to count as novel, and thus increase competition for the benefit of the public. Patents that are closely linked to biological material interfere with this mechanism as the possibility to invent around is impeded or greatly hampered due to the uniqueness of genetic material.

*Patent thickets.* Particularly for innovations that count as research tools, patent thickets are a major problem. Patent thickets may occur when patents owned by a large number of individuals with diverging interests cover an object of innovation. A classic example of how complex such negotiations can get is the “golden rice” case (cf. van den Belt, 2003). Here researchers aimed at producing a rice variety that was rich in beta-carotene destined for poorer people with deficiencies of vitamin A.

*Temporality of delays.* Agricultural innovation can have a significant role in securing the right to food. Medicines have to be taken at a certain time in order to be effective. While exclusion from the benefits of science is temporary for society at large, exclusion is permanent for those which the fruits of science arrive too late to save their lives or prevent life-long damages to their health.

*Biodiversity.* Much of biodiversity is secured by refraining to pollute, destroy or invade certain habitats. However in many instances, biodiversity is secured by enormous active conservation efforts. In the case of agriculture continuous work is done to enlarge the diversity of crops available – mainly through informal seed exchange programs. This work is often misrecognized and rarely remunerated.

*Resilience.* The philosophical, economic and legal discussion assumes that knowledge is a good of non-rivalrous consumption and that knowledge is still useful for society once the patent expires. Climate change, as well as resistance to herbicides, antibiotics, antifungi or pesticides, makes many technologies useless in the long run. If the knowledge encompassed in a lucrative innovation is of rivalrous consumption, a self-interest to sell it to a small number of high-paying customers or to overexploit it without regard to future generations raises. Incentives to conserve those resources are needed.

*Self-multiplication.* The vast majority of plant varieties that are protected by exclusive rights reproduce themselves naturally. Obviously this is not a characteristic shared with innovations in other fields of research. Who is responsible for the reproductive behaviour of plant varieties? The much-debated *Monsanto Canada Inc. v. Schmeiser* court case is a remarkable example of this complexity.

*Speedy sharing of data and samples in global emergencies.* Health and food security hazards show a capacity to cross borders unnoticed, that even the most talented smuggler in history would envy. This incapacity to seal borders hermetically makes it mandatory to have a global cooperative spirit that favours easy flow of data and biological samples in times of distress. Intellectual property and the extreme inequalities among rich and poor countries seriously hamper this possibility.

*Biosafety.* Inventions affect not only the users of a given technology but often society at large. When those effects are negative, regulations have to be arranged in order to limit unsolicited side effects. However, intellectual property can make taking risks (or being risk adverse) lucrative. Societies who do not have their basic needs secured are often more willing to take

considerable risks into account. Regional harmonization of safety standards often impedes such options (cf. Toft, 2012).

## Conclusion

The interaction between intellectual property and pro-poor innovation in the realm of life sciences is complex as demonstrated. Which ethical approach (or combination) to take will depend on the concept of justice one can most eagerly defend.

**Acknowledgement:** This article was written as a visiting researcher at the Brocher Foundation and is result of a research project of the Centre for Society and the Life Sciences in The Netherlands, funded by the Netherlands Genomics Initiative.

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