Bioethics
A Coursebook

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3. Environmental Ethics

Introduction

Environmental ethics can be understood as a subfield in applied ethics. It seeks to include other-than-human life forms and the environment in moral discussions. While nature was very much present in philosophical discussions during the eighteenth and nineteenth centuries, environmental ethics only emerged as a distinct discipline during the 1960s and 1970s. The rapidly changing world and the environmental challenges caused by human activities have called for rethinking the relationship between humans and nature. This development came with the awareness that humans may not be the only morally worthy beings, hence the need to develop moral theories that could account for ecosystems, the environment, and other beings. Such a way of thinking may very well be 'stating the obvious' nowadays, but for a long time—at least in Western philosophy—little consideration had been given to other beings from a moral perspective. Caring for other-than-human animals and protecting them may seem intuitively right, and many have stood up against organizations and individuals like poachers who threaten them, but that has not always been the case.

Also, if many voices and currents of thought emerged over the years to give significant weight to non-human beings, a stark contrast remains. Not all views within environmental ethics argue for respecting non-human beings and nature on the same ground. There are two broad stances we need to distinguish here: anthropocentrism and ecocentricism. In anthropocentrism, although moral value is attached to non-human beings, humans remain the most important living entity. Ecocentrism, on the other hand, is a nature-centred approach that does not rely on a system of values that primarily applies to humans. In short, ecocentric views value nature for its own sake while anthropocentric views retain a value in nature for its instrumental use. It is crucial to understand that there is here an important ontological divide between both: ecocentrism rejects that there would be an existential split between the human world and the non-human world, while anthropocentrism on the contrary sees humans as separate from nature and superior to it. This is a rough sketch of the positions in debates around environmental ethics; it is important to bear in mind, however, that the distinctions between anthropocentric and non-anthropocentric views are complex, and that disagreements persist.

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One of the initial tasks of environmental ethics was to come up with principles that could serve as a foundation for the field. Not surprisingly, in the same fashion as for moral theories, disagreements emerged between authors who proposed different principles to serve as guidelines. As one of the main impulses behind environmental ethics was to extend moral considerations to a broader circle of attention, one of the main questions environmental ethics needed to answer was 'whom and what' this circle should include. In other words, who or what is worthy of moral consideration? Philosophers from different moral strands (utilitarianism, deontology, virtue ethics) have proposed various answers to this challenging question and have advanced different criteria that could serve to draw a line between 'who is in' and 'who is out'. In this section, we look at some of the proposed major criteria.

One of the first philosophers to vigorously defend other-than-human interests was Peter Singer, whose book has served as a stepping stone for animal rights movements. In *Animal Liberation* (1975), Singer takes the position of a straightforward hedonic utilitarian (value is measured in terms of pleasure and pain). Hence, to be morally relevant, organisms must have the capacity to feel them. Because an organism has pleasure or pain, it has 'interests': it is interested in avoiding pain, or it is interested in sustaining or increasing pleasure. A tree, if we assume that it cannot feel pleasure or pain, thus has no interests and is outside of moral consideration. Singer's criterion is thus *sentiency*.

In its initial formulation, Singer's position suffered much criticism. He later expanded his hedonistic utilitarianism into a 'preference utilitarianism' (Singer, 1993). While the criterion remains, he distinguishes morally considerable beings on the basis of consciousness and self-consciousness. On the one hand, some conscious organisms feel pain and pleasure but have no self-awareness; they do not see themselves as persisting in the future, and hence, they have no preference to go on living. On the other hand, self-conscious organisms perceive themselves as individuals persisting through time, with desires and preferences for the future. Such preferences are, for Singer, morally relevant. Such a position entails that even if animals are morally worthy, some may be more worthy than others. All in all, sentiency remains the criterion determining who is in and who is out. From this perspective, all non-sentient organisms (such as plants, trees, and some animals) are morally irrelevant—except instrumentally, when they are a source of pleasure for sentient beings, for instance.

After Singer, Robin Attfield attempted to develop a more comprehensive consequentialist approach. For Attfield, moral worthiness is not based upon the capacity to experience pleasure or pain but instead on an ability to flourish (Attfield, 1987). Any organism that has the ability to flourish has an interest in doing so. All organisms are, therefore, morally considerable insofar as they do so; only inanimate objects are left morally inconsiderable. Attfield makes *flourishing* the criterion for inclusion or exclusion; however, it is important to note that, being a consequentialist, what matters for Attfield is the exercise of the basic capacities of a species. It is the state of flourishing that is valuable, not the individual organisms. While developing criteria for greater inclusion, philosophers rapidly noticed that, with a greater community

of beings included, conflicts might emerge, and priority principles would be needed along with criteria. Later on, Attfield, in his book *A Theory of Value and Obligation* (1987), developed a two-pronged approach. One prong consists of a sliding scale of psychological complexity, with humans at the top and plants at the bottom. The other prong revolves around needs, interests, and wants. Basic and survival needs take precedence over mere preferences and wants, and the more complex organisms have priority over the simpler.

A third consequentialist approach was developed by Gary Varner. In *In Nature's Interests?*, he focuses on the *satisfaction of interests*, which are, according to him, possessed by all and only individual living things. With interests, an organism "has a welfare or good of its own that matters from a moral point of view" (Varner, 1998, p. 6). When it comes to priority, Varner sets up a hierarchy based on desires: some organisms (like animals) have desires, while others (like plants) do not. Thus, the interests of organisms that have desires outweigh those of organisms that do not. While his hierarchy still places humans—who even have higher desires that he calls ground projects (long-term desires that require satisfaction across a lifetime)—above all other organisms, it does not imply that humans should purely trump other beings' interests. For instance, taking into consideration that eating is necessary for humans to pursue their ground projects, his hierarchy allows for a certain granularity that makes eating plants (as non-desiring organisms) better than meat (as animals have desires).

Different critiques were made of these individualist consequentialists:

1. Identifying value with a certain form of experience (be it interests, pleasure, and pain through sentiency or flourishing) remains *anthropocentric*. In the end, these three views arbitrarily pick on a capacity possessed by humans and erect it as a paradigmatic quality, serving as a foundational criterion for their moral approach. Hence, without surprise, humans always end up at the top of the priority list since the whole logic behind it is to expand the circle based on a human capacity to include other beings.
2. The problem of *replaceability*. If what matters in the end is to maximize a state of utility (preferences, satisfaction of interests, or flourishing) deemed valuable, then it remains possible to discard, use, or sacrifice any organism if it leads to a better state of affairs.
3. The *practical implementation* of the proposed criteria might be difficult. How do we decide if a whale would be more sophisticated or complex than a bat or an ape, for instance? How are such decisions biased by human prejudice?

Let us leave these points of criticism aside for the moment to look at what criteria other approaches can offer. Albert Schweitzer wrote most of his work before the development of environmental ethics. Nevertheless, he profoundly influenced subsequent philosophers, most notably through his concept of *will-to-live.* According to Schweitzer, all living things have an impulse for self-realization that should be respected, and this

is the basis for a universal concept of ethics: *Ehrfurcht vor dem Leben*, or Reverence for Life. "Ethics grow out of the same root as world- and life- affirmation, for ethics, too, are nothing but reverence for life. That is what gives me the fundamental principle of morality, namely, that good consists in maintaining, promoting, and enhancing life, and that destroying, injuring, and limiting life are evil" (Schweitzer, 1949, p. xviii). For Schweitzer, all beings with will-to-live are of equal value; humans are not in a position to judge those of other beings.

Picking up on this idea of respect for nature, Paul Taylor (2011) developed a biocentric approach with an Aristotelian background when he argued that all organisms are teleological centres for life. By that, he means that all organisms pursue some good of their own in their own way. As these organisms have a telos (goal/aim) which is vital for them, they have inherent worth. Realizing the difficulty of holding such an approach, Taylor subsequently developed four duties to the other-than-human natural world: non-maleficence, non-interference, fidelity, and restitutive justice. We will look at principlism in more detail in a later chapter. In the same fashion as consequentialist thinkers considered thus far, he also sets priority principles to resolve potential conflicts: self-defence, proportionality, minimum wrong, distributive justice, and restitutive justice. While these are complex issues we will not delve into, it is worth noting that through the simple examination of Taylor's view, there are different types of justice. We will examine these in the second part of this chapter.

Critiques were also raised against deontological approaches:

1. Both Taylor and Schweitzer have a concept of *restitution*, a form of ecological compensation according to which it would be possible to compensate for damage to or the death of individual organisms via good treatment of the same or different organisms. This holds some similarities with the replaceability issue consequentialist approaches faced. Furthermore, a restitution approach cannot be consistent with a deontological approach since wrongs cannot be summed up and compensated for as would be possible for consequentialists.
2. The moral worth given to all living beings is also problematic. Schweitzer and Taylor's views may be even more problematic than the consequentialist ones in practice. Asserting the equal value of all organisms, both fail to hold their positions consistently. Taylor, for instance, accepts medical treatment for humans during which millions of bacteria may die to save one life. Thus, despite what they advocate, both retain a certain form of hierarchy that could be problematic.
3. Other critics echo the same criticisms made of individualist consequentialist approaches. Here again, focusing on individual organisms does not allow us to ascribe value to wholes such as ecosystems or species—or, at least, it only allows it insofar as the individual members are valued. Equal value also leads to a certain (ontological) flattening by which diversity is of no value: a field of rare wildflowers is not worth more than a wheat field.

To address this criticism, some authors have attempted to develop holistic environmental approaches focusing on 'ecological wholes' (ecosystems, species, biosphere) rather than on organisms. Holistic approaches are mostly consequentialist, as they aim for the good of the whole. Holistic environmental ethics traces its roots back to Aldo Leopold's *A Sand County Almanac,* where he sets one of the most famous principles in the field: "A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community. It is wrong when it tends otherwise" (1949, p. 224). We can observe a striking contrast with the views laid out so far. First, the community is the focus of moral worth, and second, the quality used as a measurement criterion is intrinsic to this community. Environmental philosophers have further developed this holistic view after Leopold. For instance, Eric Katz (1983) suggests the ecological community's well-being as the primary ethical principle. While individual organisms have value as well, this is only secondary. Yet, the main holistic environmental defender is probably John Baird Callicott (1980), who strongly argues against any individualist approach. Firstly, he argues that all values are subjective and anthropocentric. Secondly, he accepts a form of sociobiology with the belief that ethical behaviour in human beings is instinctive and has been selected through evolution, with ethical responses by individuals within a biological community increasing survival. However, all living things have the same biological origins and form an interdependent community, which allows Callicott to emphasize the community rather than the individuals. We can quickly see some controversial conclusions from adopting such a view: for Callicott, some individuals may have to be sacrificed for the community's health. For instance, some pollinating bees are, in this view, more important than higher mammals such as humans, who sometimes are not only not vital to the community, but even a threat to it.

Again, it is no surprise that such views have triggered heavy criticism. Tom Regan, for instance, argues that holistic views allow to sacrifice individuals in the name of the stability, integrity, and beauty of the biotic community and suggests that these positions are nothing but environmental fascism (Regan, 1983, p. 362). Prioritizing the whole at the expense of the individuals is widely seen as ethically unacceptable. Callicott, like many, reviewed his positions in the light of such criticisms. He later tried to reconcile his views by introducing the idea of 'nested communities'. He argues that humans are intertwined with different moral communities which can be imagined as concentric circles, with ethical obligations diminishing towards the outer circles. He places humans in a core community at the centre; then there is a mixed community consisting of humans and domestic animals, and the wild biotic community on the outside. This review has different implications than his earlier positions, the two most important being the possibility of human concerns trumping those of other communities and the possibility of ascribing moral obligations to humans towards animals.

This brief account of different positions in environmental ethics shows us there is no silver bullet, no one-size-fits-all solution that extends moral considerations to non-human beings. Practically, they all face hurdles that challenge their practical

application. While these issues continue, environmental ethical thinking has evolved to include other aspects, such as political ones. Beyond principles and criteria, some ways of thinking have become schools of thought. We will consider two of the most important ones, deep ecology and ecofeminism, to see how environmental thinking has changed over time to include broader considerations and solve environmental challenges while attempting to reconcile different standpoints.

Deep ecology

Norwegian philosopher Arne Naess coined the term 'deep ecology' in *The Shallow and the Deep, Long Range Ecology Movements: A Summary* (1973). In his article, he distinguished two strands of ecological movements: the shallow, chiefly concerned with pollution and resource depletion; and the deep, characterized metaphysically, ethically, and politically. On metaphysical grounds, deep ecology rejects the idea that humans are separate from their environment and that all things have complex interrelatedness. Ethically, deep ecology recognizes a biocentric equality principle—that there is equal value to all living things—but acknowledges that practically, realistically, some exploitation and killing cannot be avoided. Deep ecology also requires political action to put the principles into practice while favouring diversity and decentralization. Like other authors supporting biocentric equality, deep ecology faced criticism, which led Naess to rearticulate his ideas in the Deep Ecology Platform, a series of principles serving as a foundation for the movement (Palmer, 2003).

Ecofeminism

Deep ecology has inspired various political and environmental movements such as Earth First! Nevertheless, deep ecology faced intense criticism. It did not solve all the difficulties with affirming intrinsic value and egalitarianism. Ecofeminism has strongly argued against some principles of deep ecology. Ecofeminist philosophy traces its roots back to deep ecology until it diverged from it in the 1980s and 1990s (Warren, 2015). Essentially, ecofeminists came to disagree with two basic principles of deep ecology. Firstly, with the principle that all organisms have equal and inherent value—if this principle successfully rejects anthropocentrism, it fail to account for anthropocentrism being androcentric. Ecofeminism sprung from the idea that the domination and oppression of nature is somewhat akin to the oppression of women by men. This twin oppression is understood in different ways by different ecofeminists, and so are the methods to remediate it. Nevertheless, there is a consensus among ecofeminists that, due to the connection between these axes of oppression, ecological accounts must be informed by a feminist perspective and vice versa.

They have also argued against the principle of self-realization, according to which the human self is actualized only if it is merged with nature. According to the philosopher and ecofeminist Val Plumwood: for deep ecology, the key problem in the relationships

between humans and nature comes from their separation (1991). The problem with this account, according to Plumwood, is that it allows the self to operate on the fuel of self-interest despite the potential for a wider set of concerns. Other-than-humans, in this account, have moral status only to the extent that they can be incorporated into the self, which would deny their differences. As such, deep ecology may lead to the denial of particular meanings as well as deep and particularistic attachments to places.

Aside from these criticisms, ecofeminist philosophy retains shared views with deep ecology and advocates for a 'spiritual' identification with nature in reverence for life processes, without seeking its utility to humans (Birkeland, 2010). Through more than critical analyses of dominant paradigms, ecofeminist philosophy offers interesting alternatives in the account it puts forward based on the importance of relationships and care (Plumwood, 1991), the emotional force of kinship, or closeness to another (Gruen, 1993). In other words, by emphasizing that humans are entangled in nature and do not work in isolation. Everything is interconnected and cannot be understood in isolation apart from context or ecological niche (Kheel, 1993).

Vandana Shiva, a scientist, environmental activist, and ecofeminist, criticizes the industrial and technocratic approaches to agriculture and science that reduce nature—and often women—to passive resources to be exploited. In contrast, she proposes Earth Democracy, a vision grounded in the interconnectedness of all life, where care for the planet is inseparable from social justice (Shiva, 2005).

Ecofeminism—drawing on other strands of feminist philosophy—maintains that there are no value-neutral, universally applicable, unbiased points of view. All ethical standpoints are the products of different worldviews, contexts, and places. Care should serve as the basis for all relationships between humans and the other-than-human world. It makes relationships (which are essential in defining who one is), rather than individual organisms, the valuable qualities central to ethical decision-making.

Despite how appealing and reconciliatory ecofeminist philosophy may be, it has faced its share of criticism. For one, the contextual approach may imply that there are no universals or absolutes. Another criticism is aimed at care as the foundation of environmental ethics: does it make sense to even talk about relationships or care with non-living entities (Palmer, 2003)? Does it make sense to talk to and care for a stone? How could one do so for something that supposedly has no inner state and cannot be made better or worse?

This short glimpse at deep ecology and ecofeminist philosophy shows how diverse views about environmental ethics can be. It also shows how complex the debates are, fuelled with heavy criticism from all strands. Nevertheless, environmental ethics has grown into a major field in ethics and, without a doubt, will keep growing. Ecological challenges have drawn attention to ethical insights in considering other-than-humans, ecosystems, and the biosphere itself. The task of environmental ethics is to elaborate on which answers are appropriate and what should be done in the future to tackle these challenges. With wilderness declining, urbanization growing, new forms of pollution, and human displacement, debates will expand to consider wider kinds of environments and the ethical issues they raise.

A mini philosophy of microbes

Although largely ignored by the discipline, microbes are philosophically interesting (O'Malley, 2014). We will focus on two reasons why this is the case.

Some philosophers of biology have questioned the fact that both evolutionary biologists and philosophers have mostly taken interest in organisms that are close to human beings. Microbes such as bacteria challenge existing concepts of taxonomy. Present-day concepts of taxonomy are based on sexual reproduction, genetic relatedness, and vertical gene transfer. And although different 'species' of bacteria have been identified, methods of classification based on genetic relatedness fail, as bacteria that are lumped together under one species may have genomes that are much more different than in mammalian species. Moreover, bacteria can exchange genes through a process called 'horizontal gene transfer' with other bacteria that may not strictly belong to the same species. Sexual reproduction and vertical gene transfer has long been considered the default and has been used as a basis to pinpoint fundamental biological laws of behaviour. However, as bacteria and horizontal gene transfer precede any other form of life, the possibilities this presents for different ways of looking at life cannot be understated. Bacteria can also teach us about philosophers' favourite question; 'what is a human being?' Although we often think of microbes in terms of good and bad, findings in microbiology show that our relationship with them is more complicated. For one, bacteria and even viruses are rarely purely 'good' or 'pathological': whether they affect human and more-than-human health depends on the specific relation and context, such as where they are located in the body. Moreover, discoveries related to the microbiome-gut-brain axis demonstrate how the microbes in our gut are linked with behaviour and even personality. This challenges 'atomistic' views of human beings as independent standalone organisms.

Environmental justice

Environmental justice, health, and antibiotic resistance

Antibiotics resistance

As we saw, the rapid changes in our world have presented us with many environmental ethical issues. Beyond questions of which (living) entities matter and on what ground, the interconnectedness of phenomena and their measurable (as well as unmeasurable) impacts have raised questions on a global scale about environmental justice, the most salient probably being climate change and its consequences. Nevertheless, there are many complicated issues of global environmental justice.

A growing, pressing issue— intertwining health, environmental, and justice dimensions—is the use of antibiotics.

The world is now confronted with an unprecedented crisis, facing the risk of a post-antibiotic era where infections that were treatable for decades will kill again. Firstly, antibiotics do not make distinctions between which microbes are responsible for a specific infection and which are not, so their widespread use has raised concerns about the disappearance of microbes which can contribute positively to the health of larger organisms (Gilbert and Epel, 2015, p. 123). As a result, human physiology will change, and so will human health. Additionally, the use of antibiotics leads to antibiotic resistance (ABR). ABR threatens to undermine global public health by erasing decades of progress in medicine, food security, and public health (Laxminarayan et al., 2016). By 2050, 300 million people could die as a result of ABR, which would also have dire economic consequences, with estimated financial loss of up to $100 trillion (O'Neill, 2014, p. 6).

Antibiotics do not simply vanish after usage but are released into the environment in many ways. The urines and feces of users—which contain high amounts of the active substances comprising many antibiotics—are directly released into the environment in countries lacking proper sewage infrastructures. In some countries, treatment plants retain a high concentration of antibiotics which microbial communities can be exposed to (Larsson, 2014). Antibiotics are also inserted in the environment during the production processes of active pharmaceutical ingredients and through unused discarded medicines (Larsson, 2014). The release of antibiotics into the environment is problematic because it plays a preponderant role in ABR. Firstly, it influences the emergence and evolution of pathogens. The release of antibiotics increases environmental pressure on bacteria to develop more resistance in response. The environment turns into an arena providing conditions where the added pressure can increase the available pool of resistance genes and selection for bacteria to acquire resistance through horizontal gene transfer (Larsson, 2014). Secondly, the environment plays a role in the transmission and dissemination of resistant bacteria (Bengtsson-Palme et al., 2018), which can happen through contaminated water spreading bacterial pathogens due to human's extensive traveling and through the transportation of goods and food (Larsson et al., 2018). This has led to the emergence of the One Health perspective, which considers human and other-than-human animal health to be interconnected with the environment. Yet, so far, no research has shown the exact direct and indirect impacts on health resulting from environmental exposure to antibiotic-resistant bacteria (Wuijts et al., 2017).

From the perspective of responsibility regarding environmental pollution, ABR raises many ethical challenges. Some are directly linked to health issues and exacerbate them, and others are linked to questions of global justice. Four different sets of ethical problems can be distinguished (Littmann et al., 2015). (1) ABR impacts ethical challenges in infectious disease control where patient autonomy needs to be balanced with the protection of others. (2) The second set of problems pertains to

animal ethics and the use of veterinary antibiotics, which represents more than half of the world's antibiotic consumption. Antibiotics are used not only to treat animals but also as a growth stimulant. While banning the non-therapeutic use of antibiotics in the veterinary sector is ethically quite uncontroversial, limiting their use to treat animals raises questions of animal welfare rarely addressed (Littmann et al., 2015). (3) ABR raises challenges of distributive justice for the fair allocation of antibiotics. If it is urgent to reduce antibiotic consumption, there are still many people who die due to a lack of access to high-quality antibiotics. It is necessary to reduce the excessive use of antibiotics in some areas while ensuring their access in other areas (Littmann and Viens, 2015). Addressing the ABR issue collectively, on a global scale, means determining who is responsible for reducing antibiotic use and to what extent, who needs assistance to reduce their use, and how we can still benefit from this resource. (4) Finally, ABR raises inter- as well as intra-generational ethical challenges of distributive justice in that current generations' interests in antibiotics conflict with the interest of future generations who will have to bear the consequences of antibiotics with reduced efficacy (Littmann et al., 2015). Thus, ABR shares many similarities with climate change as a multisectoral problem, making it difficult to address. In short, it is another pressing 'perfect moral storm', which is why it is relevant to consider.

The following chapters about health care ethics and animal ethics will flesh out issues (1) and (2) and allow you to better grasp all the dimensions and complexity of ABR. But first, let us return to the other issues. Namely, that ABR raises questions of justice and more specifically distributive justice.

What is (environmental) justice?

Justice takes on different meanings in different practical contexts, and to understand it fully, we have to grapple with this diversity. But first, let's have a look at what 'justice' means. Philosophically, some of the most ancient theories of justice came from the Greeks. For them, justice was, first and foremost, a virtue: the virtue of the soul (in action) (Miller, 2023). Aristotle and Plato both conceived justice as goodness and tied it to an ideal of perfection in human relationships. Although this may sound abstruse, we can already draw some initial insights from their perspectives: justice has something to do with 'being good' and is held as having the highest value. Also, from this angle, justice has more of a moral meaning than a legal one. Perhaps the first established core definition of justice traces back to the Institutes of Justinian, from the sixth century AD. In Roman Law, justice was defined as "the constant and perpetual will to render to each his due" (Miller, 2023). This definition encapsulates several dimensions of justice that still make sense nowadays. In other words, justice looks at how humans are treated to ensure that each person gets what they deserve equitably and consistently through time.

Justice is complex. Not only does it encompass several dimensions, it also implies discussions from different angles in different frames of reference. In short, depending on the context, justice can mean or refer to many different conceptions. Environmental justice mostly refers to a distributive kind of justice. Justice can be employed as a distributive principle (Lamont and Favor, 2017): when there are resources or goods that need to be distributed and several people have a claim over them, distributive justice aims at ensuring that the repartition is fair. Fairness can be understood in various ways; hence, a just distribution could take various forms. How do we ensure that an apple pie is shared fairly if it has to be cut into slices for several people? A fair distribution means that everyone should get a slice of the same size. Others could argue that the hungriest people should get bigger slices. Another possible factor to consider is that the people who harvested the apples and baked the pie have put some effort into it and should be rewarded for this effort. It is also possible to argue that the people who like apples the most should get bigger slices because they are the ones who would get the most pleasure from eating the pie.

Hence, environmental justice is a type of distributive justice chiefly concerned with the distribution of risks and benefits linked to the environment. So, it deals with questions about who should bear the costs of pollution, who should have access to different kinds of resources, and so on. Now, it should be more clear why ABR is a case of distributive justice. First of all, it concerns a fundamental aspect of human life: health and access to care. On a global scale, the inequalities are well-known and widespread, life expectancies differ greatly from one country to another, and the availability of antibiotics is much more critical for populations in dire need and/or populations without access to alternative treatments. Types and concentrations of antibiotics vary greatly from one country to another (Hanna, et al., 2018). The current state of affairs is a result of unequal development and access to high-quality antibiotics—some low-income countries never even fully entered the antibiotic age (Littmann et al., 2015) and are disproportionally affected by ABR.

But it gets more complicated, like climate change; ABR raises inter- and intra-generational ethical challenges of distributive justice where the interests of different generations compete. Most discussions consider forward-looking perspectives by including future generations, but we can also look backward to integrate remediation for past harms. Then, justice is not only taken as a distributive principle but as a remedial principle: the justice we talk about when a wrong was committed, which seeks to restore the victim's state of affairs had the wrong not occurred (Miller, 2023). In the case of ABR, while countries with early access to antibiotics had unlimited use of them until ABR was discovered, other countries—which now account for a large portion of antibiotic consumption (Laxminarayan et al., 2015)—risk being denied the same use now that restrictions are to be applied all around the world to safeguard the efficiency of antibiotics. This could give ground for compensation on two aspects: developing countries should be compensated for the missed opportunities antibiotics restriction

would impose on them, and developed countries should also compensate for their past overuse that has jeopardized antibiotic efficiency. Compensation also makes sense if we look at it from the perspective of production processes. Pharmaceutical companies have developed antibiotics mostly for the benefit of high-income countries, but the antibiotics themselves are often produced in other countries, especially in China and India (Hanna et al., 2018). The production of antibiotics polluted the environments of these countries, increasing the presence of antibiotic-resistant genes in the areas (Ashbolt et al., 2013). For instance, in the Ganges valley, water used for drinking and recreational purposes is now contaminated by resistant bacteria.

Through these short considerations, which only barely cover the justice aspects of ABR challenges, we can see how environmental ethics and justice issues can quickly grow in complexity and that justice or 'being just' is not as straightforward as one may think.

Environmental justice: the case of Ecuador

The Yasuni case

In the east of Ecuador in Latin America, the Yasuni National Park encompasses a section of the Amazon rainforest. Recognized as one of the most biodiverse regions in the world, it is also home to several Indigenous Amazonian tribes. In this rainforest, an oil field named Ishpingo-Tambococha-Tiputini (ITT) was discovered in the early 2000s, containing approximately 846 million barrels of crude oil—around 20% of Ecuador's proven oil reserves.

Exercise: Watch the video clip on the oil drillings in Yasuni National Park (4.5 mins).

https://www.youtube.com/watch?v=c07Z1ZexT7E

Think about and list different arguments for and against the extraction of oil in Yasuni National Park.

What is of value? Anthropocentrism and ecocentrism

Whether or not to drill for oil is the question in this case. In listing arguments for and against, one might say that another round of large-scale deforestation in the Amazon is bad. But why? Is it because we cherish the value of the individual trees, forests, and the ecosystems they support? Or is cutting down rainforests bad since it deprives humans of so-called 'ecosystem services' which might buffer climate change or provide a reservoir of undiscovered medicines? Of course, these kinds of arguments can be combined, yet this question of 'what is of value?' has been essential in environmental ethics.

The Yasuni-ITT initiative

Let us return to our case in Ecuador. To prevent oil exploitation, Indigenous peoples and environmental movements devised an alternative proposal that the Ecuadorian government eventually picked up. The proposal, called the *Yasuni-ITT initiative*, suggested a permanent ban on oil production inside the Ishpingo-Tambococha-Tiputini oil field. In exchange, the Ecuadorian president asked the international community at a general assembly of the United Nations to contribute to a fund worth 50% of the value of the Yasuni oil reserves, or $3.6 billion. By preventing the drilling, the Yasuni-ITT initiative sought to conserve the region's biodiversity and protect the Indigenous peoples currently living in voluntary isolation inside the Yasuni National Park (Einhorn, Andreoni, and Schaff, 2023). It also sought to avoid the emission of significant quantities of CO_2 caused by burning the oil, and to begin a transition to a sustainable economy in Ecuador, using the funds to create jobs in sectors such as renewable energy.

Think about the distribution of benefits, harms, and responsibilities in either of two scenarios:

1. The extraction and selling of the entire oil reserve.
2. The Yasuni-ITT initiative to request financial compensation from the international community to leave the oil in the ground.

Which people/groups benefit from either option? Who is harmed? Who is responsible?

Buen Vivir

Buen Vivir, or Vivir Bien, is a term used in Latin American countries like Ecuador and Bolivia to describe a moral and political worldview of the good life in a broad sense (Gudynas, 2011). Buen Vivir is a Spanish translation of the Kichwa (or Quechua) term *sumak kawsay* and similar terms, which refer to a fullness of life in a community, together with other persons and nature, situated in a specific territory. The Buen Vivir worldview is built on the traditions and knowledge of Indigenous peoples living in the Andes and Amazon regions for centuries (Gudynas, 2011). Thus, the immediate environment is seen as part of the community people belong to, which positions Buen Vivir as an ecocentrist worldview.

Since the early 2000s, Indigenous ideas started to be combined with a present-day critique, leading to the Spanish phrase 'Buen Vivir'. This critique mainly targeted notions of 'development' and 'extractivism', which dominated Latin American countries over the past five decades (Fatheuer, 2011). Extractivism refers to the ongoing,

large-scale extraction of material resources (gold, lithium, oil, etc.) in countries in the Global South with the often unfulfilled promise that profits will be used to 'develop' the country in social and economic terms. The Yasuni case is a clear example which fuelled Buen Vivir's expansion in Ecuador.

Rights of nature

Proponents of Buen Vivir stress that their ideas are always evolving, but some main concepts can be distilled. For example, they favour an economy that is directly in service of people and their environment, grounded on principles of reciprocity, sufficiency, and solidarity, in clear contrast to the extractivist idea that the environment needs to be capitalized on before people's lives can be improved in a later stage.

A key breakthrough of the Buen Vivir worldview is the explicit inclusion of the term and some of its central ideas into Bolivia's and Ecuador's revised constitutions. Since 2008, Ecuador's constitution has contained several articles on 'the rights of Nature'. This is a unique and remarkable move, since constitutions generally describe the rights of people and their right to a clean environment. In Ecuador, 'Nature' actually holds rights in itself. Article 71, for example, says, "Nature, or Pacha Mama, where life is reproduced and occurs, has the right to integral respect for its existence and the maintenance and regeneration of its life cycles, structure, functions, and evolutionary processes". Thus, the environment's intrinsic value—which ecocentrists argue in support of—was translated and anchored in a juridical document. Also, the direct moral obligation to protect 'Nature' is embedded in the constitution: "The State shall apply preventive and restrictive measures on activities that might lead to the extinction of species, the destruction of ecosystems and the permanent alteration of natural cycles" (Article 73).

Importantly, these Rights of Nature do not stipulate an obligation to protect every *individual* plant, animal, river, etc., in themselves. Instead, it takes a system theory's perspective, speaking of life cycles, ecosystems, and evolutionary processes that need to be valued and protected. In other words, Buen Vivir does not call for non-interference with the environment or conservation of pristine nature. However, it does call for a human-environmental relationship based on reciprocity and interdependency.

Conclusion

In this chapter, we have seen how the field of environmental ethics has evolved, from its inception in the wake of pollution cases that emerged in the 1960s to its most recent developments, taking the form of full-fledged theories. The first approaches to environmental ethics attempted to broaden the circle of morally worthy beings beyond humans by using different inclusion criteria, such as sentience. Nevertheless, these approaches largely remained anthropocentric and faced criticism. The field of

environmental ethics subsequently evolved with all-encompassing theories, such as deep ecology and ecofeminism, that linked environmental issues with political and social matters. The second part of this chapter discussed what environmental justice is through the lens of antibiotic resistance and the Yasuni Park case in Ecuador. These examples highlighted the complexity of being 'just' from an environmental perspective, due to the scale of the issues it covers and the complex interrelations and interactions it involves.

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