

# **Ecosystem Services and Distributive Justice**

Considering access rights to ecosystem services in theories of distributive justice

Forthcoming in *Ethics, Policy & Environment*

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**Abstract:** As the increasing loss of ecosystem services severely affects life perspectives of today's poor and future persons, governing access to, and use of, ecosystem services in an intragenerational and intergenerational just way is an urgent issue. Therefore, I argue that theories of distributive justice should consider the distribution of access rights to ecosystem services. I work out three specific demands that a theory of distributive justice should fulfill to adequately cope with the distribution of access rights to ecosystem services, and show that Rawls' "A Theory of Justice" (1971) can be consistently extended to meet the identified demands.

**Keywords:** ecosystem services, distributive justice, environmental justice, global justice, intergenerational justice.

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## 1. Introduction

Climate regulation, flood protection, pollination, fertile soils, clean freshwater - the Earth's ecosystems provide a large variety of socially, economically and culturally valuable services to humans (TEEB 2010). Yet, humans degrade today's ecosystems faster than ever and cause the loss of important ecosystem services (MEA 2005: 26ff.). The harmful effects of diminishing ecosystem services appear either as negative externalities, as in the case of climate change or soil erosion, or as a loss of access to natural resources, as in the case of fish, fertile land or fresh water. Today's poor, women and indigenous communities as well as future generations are, respectively will be, disproportionately affected by the negative externalities of ecosystem degradation and by loss of access to essential ecosystem services (MEA 2005: 62). Thus, the human use of ecosystems and its services raises fundamental questions of intragenerational and intergenerational justice. However, the specific questions of justice linked to the governance of access to, and use of, ecosystem services have not been discussed thoroughly within the distributive justice literature in general and the environmental justice literature in specific.

In this paper, I justify that theories of distributive justice should consider the distribution of access rights to ecosystem services - both among persons of the present generation and between persons of the present and future generations. This poses specific challenges to the environmental justice discourse which addresses the unequal distribution of environmental burdens and hazards between different contemporary societal groups (e.g. Bryant 1995, Schlosberg 2007)<sup>1</sup>: (1) The choice of the *objects of distribution* needs to be discussed explicitly. I define the objects of distribution generally as the "what?" of distribution according to Dobson (1998: 63), and as the instruments used to fulfill legitimate

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<sup>1</sup> David Schlosberg (2007) has illustrated that - while political theorists have focused on "justice as distribution" - activists in the environmental justice movement claim distributive justice combined with individual and social recognition as well as participation. Still, I focus on the aspect of distribution in this paper.

claims for justice (i.e., the “objects of distribution” fall together with the "instruments of justice", cf. Baumgärtner et al. 2011). In the context of environmental justice, the objects of distribution are the components of nature which are considered as instruments to satisfy legitimate claims for environmental justice. I explicitly reason why access rights to ecosystem services are adequate and sufficient objects of distribution to address injustices in the use and conservation of ecosystems. (2) The scope of theories of environmental justice needs to be extended to tackle questions of global and intertemporal justice simultaneously within one theory. Presently, literature on justice with regard to ecosystem use and conservation tends to focus either on the intragenerational dimension (the environmental justice discourse, e.g. by Schlosberg 2007 and Schroeder et. al. 2008) or on the intergenerational dimension (the ecological sustainability discourse, e.g. by Goodland 1995 and Neumayer 1999) although these dimensions are interconnected (cf. Glotzbach and Baumgärtner, in press). (3) Theories of distributive justice need to be reconsidered for their suitability to address the distribution of access rights to ecosystem services. I work out three specific demands that a theory of distributive justice should fulfill to adequately cope with the distribution of rights to ecosystem services. Subsequently, I show that the "A Theory of Justice" by John Rawls (1971) can, by interpreting and extending it in a consistent way, meet the demands.

In the following I use the term *conception of environmental justice*, resp. *principle of environmental justice*, to describe a conception of distributive justice that specifically addresses the distribution of access rights to ecosystem services, resp. the principle(s) of justice following from such a conception of environmental justice.

The paper is structured into six sections. In section 2, I reason that theories of distributive justice should, in order to tackle injustices related to the use of ecosystems, focus on access rights to ecosystem services as objects of distribution. In section 3, I identify three specific demands that a theory of distributive justice should fulfill to adequately cope with the

distribution of access rights to ecosystem services. In section 4, I hypothesize that Rawls' "A Theory of Justice" (1971) is an appropriate theory for deriving a conception of environmental justice, and prove this hypothesis by facing his theory with the identified demands. In section 5, I apply the Rawlsian theory to the distribution of access rights to ecosystem services to derive a principle of environmental justice. In section 6, I give a conclusion.

## **2. Rights to ecosystem services as objects of distribution**

In this section, I argue that access rights to ecosystem services are particularly suitable objects of distribution to address injustices in the use and conservation of ecosystems. My argumentation is structured along three questions: (1) Why focussing on *ecosystem services*? (2) What does *distribution* mean with regard to ecosystem services? (3) Why distributing *access rights* to ecosystem services?

(1) The notion ecosystem service, as used in this paper, encompasses all benefits that living ecosystem funds (e.g. animals or trees) and non-living ecosystem funds (e.g. soil or air) contribute to human wellbeing (cf. Faber, Manstetten and Proops 1995: 44ff., Georgescu-Roegen 1971: 224ff., MEA 2003: 53). Using the example of the ecosystem "coral reef", I explain why one should choose *ecosystem services* as core objects of distribution with regard to a conception of environmental justice.

Starting at the ecosystem level, it seems not purposeful to distribute a coral reef itself among different persons. Individual claims to a just use or conservation of a coral reef usually refer to certain components of and processes within the coral reef ecosystem: Claim holders may call for access to its rich fish stocks or the permission to dive and enjoy the beauty of the coral reef; they may claim to conserve the coral reef as spawning area for fish, as shoreline protection from strong currents or because of the high biodiversity it supports. The concept of

ecosystem services includes all such ecosystem components and processes that humans value. Thereby, the concept is not restricted to according nature solely instrumental value - the category of cultural ecosystem services<sup>2</sup> also allows according nature aesthetic intrinsic value, *Heimat* value and sacredness (cf. Krebs 1999: 66). Changes in all types of ecosystem services affect human well-being in multiple ways. For instance, changes in access to fish stocks impact on security of livelihoods of coastal inhabitants, and changes in shoreline protection impact their security against natural disasters. The resulting well-being itself cannot be (re)distributed among different persons as it is bound to the access to certain ecosystem services. This implies that governing access to ecosystem services can serve as an instrument of justice that directly influences human wellbeing. Summarizing the two aspects, ecosystem services encompass all ecosystem components and processes that humans value and at the same time constitute effective instruments to influence human wellbeing insofar as it is connected with ecosystems. Therefore, ecosystem services are particularly suitable objects of distribution to address injustices in the use of ecosystems

(2) To explain what *distribution* can mean with regard to ecosystem services, it is necessary to make two distinctions: (i) between divisible ecosystem services characterized by rivalry in consumption and indivisible ecosystem services characterized by non-rivalry in consumption; (ii) between distribution among presently living humans (“intragenerational distribution”) and distribution among humans of different generations (“intergenerational distribution”).

(i) Divisible ecosystem services characterized by rivalry in consumption (e.g. food, fresh water) can be distributed in the “classical” sense, i.e. a certain quantity of the total quantity of an ecosystem service (e.g. a bucket of clean fresh water, a hand of rice) or of its underlying productive funds (e.g. a parcel of fertile agricultural area, rice seeds) can be

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<sup>2</sup> The MEA (2003:57) divides ecosystem services into four categories: provisioning, regulating, cultural and supporting services. Cultural ecosystem services include among others spiritual, religious, educational and aesthetic values, sense of place and recreation.

allocated to different humans. Ecosystem services characterized by non-rivalry in consumption (e.g. erosion control, climate regulation) can be – and insofar they are also characterized by non-excludability from use must be – provided to whole communities at the same time. Distributing such ecosystem services can only mean providing a specific quality of the ecosystem service to a community (e.g. a certain level of flood regulation or a certain level of climate regulation provided by a forest).

(ii) Intragenerational distribution relates to the access to a specific quantity or quality of ecosystem services. Across generations only an indirect distribution of access rights to ecosystem services is possible via the sustenance of “productive” ecosystems. Therefore, intergenerational distribution relates to the passing on of (critical) ecosystem funds (e.g. viable fish populations, fertile soils) - as a prerequisite for the access to ecosystem services of future persons.

(3) Why distributing *access rights* to ecosystem services and not ecosystem services itself? The access right to an ecosystem service is more comprehensive than the corresponding ecosystem service because it constitutes the normative background of a concrete distribution and can actually be distributed - whereas many ecosystem services (e.g. climate regulation or clean fresh water) are presently not (sufficiently) available for "distribution" to all claim holders (Leist 2005: 1).

### **3. Demands on a conception of environmental justice**

A conception of environmental justice should fulfill specific demands to adequately cope with the distribution of access rights to ecosystem services. In this section, I develop and discuss three specific demands which are (i) the global and intertemporal extension of the community

of justice, (ii) institutional agents as claim addressees, and (iii) includability of ecosystem services as objects of distribution.

### **3.1 Global and intertemporal extension of the community of justice**

The *community of justice* comprises all holders and addressees of legitimate claims for justice (Baumgärtner et al. 2011, Dobson 1998: 64). In the following, I give three reasons why a conception of environmental justice demands extending the community of justice to include a global community across generations. The reasons are based on the assumption that the provision and use of ecosystem services create global and intertemporal social relations which give rise to legitimate claims for justice.

First, the modes of generation and provision of many ecosystem services produce the necessity to extend the community of justice beyond a national community, both spatially and temporally. Whereas some ecosystem services are provided at the same spatial and temporal scale as the ecosystem that generates them (e.g. the provision of wood by a forest ecosystem), others are provided at a completely different scale as the generating system (Elmqvist et. al. 2010). Examples include pollination, which is provided at local scale, but depends on the maintenance of viable populations of pollinators on the landscape level, as well as climate regulation, a service provided at global scale and with time delay, but generated locally by carbon sequestration in organic matter (ib.). Hence, human action towards local ecosystems (e.g. the clear cut of a forest) can affect the provision of ecosystem services at the other end of the globe and in remote future (e.g. climate impacts due to failing global climate regulation). Second, provision and use of ecosystem services are separated spatially as a consequence of globalization. International trade, global division of labor and the operating principles of multinational corporations often go along with specific patterns of production and consumption: Harms associated with ecosystem service provision are distributed to the countries of the global South, whereas benefits from ecosystem service use are distributed to

the countries of the global North. Third, modern technology (e.g. nuclear power plants, GMO technology, and potentially Geo-Engineering) has enormously extended human impact on ecosystems. Today's introduction of such technologies can irreversibly affect future states of ecosystems and their potential to provide ecosystem services to future persons (cf. Jonas 1988: 8f., 54).

As humans impact on the provision and use of ecosystem services and thereby create global and intertemporal social relations that give rise to potentially legitimate claims for justice, a conception of environmental justice needs to tackle the question how these relations across time and space should be governed in a "just" way.

### **3.2 Institutional agents as claim addressees**

The *claim addressees* are the agents within the community of justice who must ensure that legitimate claims for justice asserted by the *claim holders* are fulfilled (Baumgärtner et al. 2011). I will give both positive and normative arguments why societal institutions and its agents should be the claim addressees once the claims concern access rights to ecosystem services.

One positive reason is the cognitive, emotional and motivational overload of individuals. No single individual can overview all consequences of her own environmental behavior - because of the temporally and spatially aggregated impacts on ecosystems of myriad independent decisions, the complexity of ecosystem processes and the interdependency of different ecosystem services. As societal institutions (e.g. eco-labelling) exert an orientation function, they can help to value individual environmental behaviour (Kopfmüller 2001: 106). Further, emotional and motivational barriers impede constraining one's own behaviour for the sake of persons at the other end of the globe and in remote future. Societal institutions (e.g. environmental legislation) can possibly reduce the psychological gap between the motivation to accept moral rules and the motivation to act in accordance with

them (Birnbacher 2006: 21). From an economic point of view, most ecosystem services are viewed either as common-pool goods or as public goods, resulting in overuse (in case of common-pool goods) or insufficient provision (in case of public goods) of ecosystem services. To repair this market failure, the intervention by societal institutions and rules (e.g. property rights, laws, taxes or community management) is demanded. From a governance point of view, most impacts on the delivery and distribution of ecosystem services evade an individual's immediate sphere of activity. The governance function of institutions facilitates the coordination of different agents, where cumulative effort for the conservation and provision of ecosystem services is needed (e.g. in the case of global climate regulation and global biodiversity conservation). All these reasons point to societal institutions and its agents as the appropriate claim addressees. By focusing on societal institutions and institutional agents one needs to bear in mind that it is the individual actors, their norms and their conduct who shape societal institutions and who ultimately comply with or reject institutional rules.

The *normative reason* for choosing institutions as claim addressees is founded on the communitarian value of ecosystem services. Faber and Petersen (2008) use the term institutional justice (“Ordnungsgerechtigkeit”) to describe a structure of a community that enables its members to lead a good life in the best possible way. Hence, institutional justice demands creating conditions that enable a good life in a community. The provision of ecosystem services, at least of the essential and non-substitutable ones, could be defined as a necessary condition for realizing a good life in a community. Transferring the argumentation by Faber and Petersen to environmental justice, societal institutions would need to ensure the provision of vital ecosystem services to all members of a community. As national institutions which govern the use of ecosystem services influence the possibilities for a good life of people living in other nations and in the future (cf. section 3.1), its global and intertemporal impacts need to be considered (Pogge 1989: 256).

### **3.3 Includability of ecosystem services as objects of distribution**

As I have argued in section 2, access rights to ecosystem services should be the objects of distribution to adequately address injustices related to the use and conservation of ecosystems. Most theories of distributive justice only refer to certain objects of distribution. For example, Rawls' theory is concerned with the distribution of primary social goods, i.e. “things that men are presumed to want whatever else they want” (Rawls 1999a: 230). Thus, it needs to be investigated whether ecosystem services can fall into the restricted category of objects treated by the theory under consideration, e.g. whether access rights to ecosystem services can fall into the category of primary social goods.

## **4. Rawls’ “Theory of Justice” and the demands on a conception of environmental justice**

To develop a philosophically founded conception of environmental justice, it is instructive to build on established theories of distributive justice. Theories, which shall contribute to build a philosophically founded conception of environmental justice, need to be reconsidered for whether they can fulfill the demands elaborated in the previous section 3. I hypothesize that the “A Theory of Justice” by John Rawls (1971) is an appropriate theory for deriving a conception of environmental justice, and prove this hypothesis by facing Rawls’ theory with the three demands on a conception of environmental justice.

### **4.1 Rawls: global and intertemporal extension of the community of justice**

Rawls’ theory is a contract theory considering the question of a just basic structure of society, which includes the political constitution and the principal elements of the social and economic system. Its focus is on the development of certain principles of justice that should guide societal institutions in the distribution of primary social goods. His theory is characterized by

an impartial perspective: Rawls introduces an original position in which the contract partners decide on principles of justice from behind a veil of ignorance, neither knowing their specific place in society nor what makes them different from other individuals regarding natural assets and abilities nor what conception of a good life they hold. The imaginary original position serves the purpose of deducing, justifying and revising fair and generally agreeable principles of justice. In this original position, the contract partners commonly agree on two principles of justice (ib. 53): (1) equal rights to the most extensive set of equal basic liberties; (2) social and economic inequalities are only allowed (a) if they are to the benefit of the least advantaged, and (b) if societal positions and offices are accessible to all.

Rawls chooses the members of a nation state, i.e. a "society (...) as a closed system isolated from other societies" (Rawls 1999a: 8), to be the community of justice. Can his theory be extended in a consistent and coherent way to include a global community of justice and future persons and, thereby, meet the first demand on a conception of environmental justice?

#### The original position and a global community:

In general, two basic conditions are claimed to constitute and delimitate the community of justice (cf. e.g. Leist 2005: 11f.; Pogge 1989: 262ff.): (i) *reciprocity*, defined either as a significant web of mutual social relations or as social relations characterized by mutual advantage; and (ii) *moral equality*, based e.g. on human dignity.

On one site, Rawls draws on *reciprocity* as the defining condition of the community of justice for he assumes "that those who engage in social cooperation choose together, in one joint act, the principles [of justice, author's note]" (Rawls 1999a: 10). As Samuel Freeman (2006: 38) points out, social cooperation in the Rawlsian framework is only possible within a "basic structure of society" constituted by social institutions such as a legal system, competitive markets and private property (Rawls 1999a: 6). On the other hand, Rawls

accounts with his original position for the *moral equality* of all humans: “For in this situation [the original position, author’s note] men have equal representation as moral persons who regard themselves as ends” (ib. 157). He uses the veil of ignorance to construct an impartial situation that secures a morally equal treatment of all contract partners. The discussion about extending Rawls’ domestic original position to a global one bears on this inner tension between reciprocity and moral equality as the defining condition of a community of justice.

Rawls himself rejects a global original position in which representative members of a world society decide upon a global basic structure of institutions. Instead, he constructs in his book "The Law of Peoples" (1999b) a second original position containing delegates from different nations who decide on principles of international law. Criticism of Rawls’ international original position and of the principles of justice derived from it concentrates on three aspects: The lack of reference to a globally just distribution of primary goods, the priority of national decisions and the assumed analogy between individuals and states in the original position (Hayden 2002: 89; Pogge 1989: 240). Because of these significant objections against Rawls’ international original position, I investigate the potential of a global original position.

The first question that arises is why Rawls himself did reject a global original position. Freeman (2006: 53) points to a certain kind of reciprocity, i.e. democratic social and political cooperation within the basic institutions of society, which Rawls assumes as constitutive for a community of justice that decides on the distribution of primary social goods. This kind of reciprocity would not exist at the international level: “Given the central role that cooperation and reciprocity play in Rawls’s system, the absence of the rule of law at an international level is not merely a “practical” difficulty. It plays a central role in determining what individuals can reasonably expect of one another under such circumstances” (Heath 2005: 7f., cf. also Freeman 2006). Charles Beitz (1979), the first who proposed extending the Rawlsian original position to the global level, holds against the reciprocity-argument that the present absence of

a global basic structure is no obstacle against a global original position: “Ideal theory prescribes standards that serve as goals of political change in the nonideal world, assuming that a just society can, in due course, be achieved. The ideal cannot be undermined simply by pointing out that it cannot be achieved at present” (ib. 156).

Proponents of a global original position refer to moral equality as a central feature of the Rawlsian original position. They argue that morally equal treatment of all presently living humans would require a global original position. Excluding economic, social and natural contingencies in the original position, but not compensating for contingencies related to the country of birth (e.g. the unequal distribution of natural resources) would be an indication of moral arbitrariness in Rawls’ contract theory – as it would imply unequal moral treatment of humans inhabiting different countries (Beitz 1979, Pogge 1989: 247). The demand for a global original position based on the mutual appreciation as morally equal persons would remain valid if international social cooperation is insufficient to constitute a global basic structure (Leist 2005: 79). I assume this to be a convincing argument for a global original position.

#### The original position and future people:

In intergenerational relations (i.e. social relations between persons of different generations) the lack of reciprocity reveals as much more fundamental than in intragenerational relations. The non-concurrency of existence of the present and future generations makes mutual communication and cooperation impossible. Instead, intergenerational relations are characterized by radical asymmetry in power (Dobson 1998: 103; Leist 2005: 24ff., Rawls 1999a: 254). But, as I have argued with regard to a global original position, the domestic community of justice can be consistently extended drawing upon moral equality of all humans as defining feature of a community of justice. In this paragraph, I analyze how far the

condition of moral equality allows extending the original position to include future persons. Starting from Rawls' domestic original position in which the members of a nation state are assembled, I investigate whether and how this original position can be consistently extended to also represent future persons. In doing so, I refer to three models discussed by Rawls:

- 1) The assembly in the original position contains only self-interested contemporaries (Rawls 1999a: 121, 254f.).
- 2) The assembly in the original position contains only contemporaries, but they represent family lines that have an interest in the wellbeing of their descendants (*ib.* 255).
- 3a) The assembly in the original position contains all individuals who exist, have existed and will exist (*ib.* 120).
- 3b) The assembly in the original position contains representatives from the present and actual future generations (Richards 1983, in De-Shalit 1995: 110).

In model 1, there are only persons who know that they are contemporaries, but who do not know which generation they belong to in the original position. As they could not affect the saving decisions of previous generations, they would acknowledge the principle that no one has to save for posterity (Rawls 1999a: 255). The persons' knowledge about them being contemporaries would prevent the representation of future persons' interests in the decisions of contemporaries.

In model 2, the assembly members are contemporaries who represent family lines and, therewith, care about the wellbeing of their descendants (*ib.*). This is the solution proposed by Rawls. By rejecting the motivation assumption of purely self-interested persons in this model, Rawls breaks his contractualist reasoning. He introduces altruistic interests of the assembly members and a *particular* conception of a good life (i.e. the idea of the family and of emotional familiar ties) which is not consistent with Rawls' fundamental conception of the original position (De-Shalit 1995: 105ff.). Therefore, I assess his solution as unconvincing.

Model 3a, an assembly of all persons who will live at some time, is rejected by Rawls because this conception would "cease to be a natural guide to intuition" (Rawls 1999a: 120). Although Rawls wants to show principles of justice for an ideal society and stresses that the original position is a "purely hypothetical situation" (ib. 104), his objection is reasonable. Another argument against model 3a can be derived from the assumption of endogenous population development: If the number and individuality of future persons fully depends on actions of the present generation, there can only be possible future individuals. At least two significant objections are raised against attributing moral rights to possible future individuals: the „non-identity-problem“ (e.g. Schwartz 1978, Parfit 1987) and the “non-existence” argument (e.g. Beckermann 2006, Partridge 2008: 4). The non-identity-problem questions the assumption that individuals of the present generation can harm future individuals. The actions of the present generation (e.g. the choice between different environmental policies) would not only determine the future environment, but also which individuals will come into existence. If the very existence of a future individual is necessarily associated with a certain present action, the future individual could neither be harmed nor benefited by this action (Parfit 1987; Page 2008: 10f.). Ott (2003: 43) clarifies that the validity of the non-identity-problem “rests on the distinction between person-dependent and person-independent moral principles”. Person-dependent principles would relate to a future person, i.e. a “future human being who owns such features that are (or will be) constitutive of personhood”, whereas person-independent principles would relate to a future individual, i.e. a “particular future person” (ib. 42). The non-identity-problem would be a person-dependent moral principle (ib. 44). As the (possible) future individuals in the original position of model 3a are behind a veil of ignorance and, hence, do not know about their particular abilities and their concept of the good, it seems sufficient to assume future *persons*. Therefore, the non-identity-problem can be rejected within the context of the Rawlsian original position. The non-existence argument refers to the potentiality of future persons and says that *possible* persons do not have any interests at all

and, therewith, do not have moral rights until they come into existence (Parfit 1987: 359, Partridge 2008: 5). The argument can only be rejected if we assume that solely real future persons are represented in the original position.

Model 3b slightly differs from model 3a as it makes weaker assumptions about future generations. It takes the assumption made by Richards (1983, in De-Shalit 1995: 110) that the assembly only contains *real* future persons, who are concerned with the circumstances of their existence, but not their existence itself. More specifically, Model 3b only assumes that there will be at least one future generation with at least one future person living and being characterized by the same human features as present persons. As the assembly decides on abstract and generally agreeable principles of justice, it is not important to know the exact number of generations and of future people in the original position. Model 3b only refers to *real* future persons (i.e. persons who will actually live in the future) and, therefore, the non-existence argument is not relevant. Hence, this model can consistently represent future persons in the original position.

Although Rawls restricts the community of justice to a national community of contemporaries, his original position can - based on the moral equality of all present and real future humans - be consistently extended to include a global community of justice across the present and future generations.

#### **4.2 Rawls: Institutional agents as claim addressees**

Rawls assumes that the primary subject of justice is "the basic structure of society, or more exactly, the way in which the major social institutions distribute fundamental rights and duties and determine the division of advantages from social cooperation" (Rawls 1999a: 6). In Rawls' theory it is institutions and the institutional agents who govern the distribution of

primary social goods. Hence, it is institutions that must ensure that justified claims for primary goods are met. Institutional agents are the claim addressees in Rawls' theory.

### **4.3 Rawls: Includability of ecosystem services as objects of distribution**

Rawls' theory derives principles of justice for the distribution of primary social goods. For addressing the distribution of access rights to ecosystem services based on the Rawlsian theory, it is crucial whether ecosystem services can fall into the category of primary social goods. Rawls does not discuss natural resources and intact ecosystems as part of his list of primary goods. Nevertheless, all attempts to relate Rawls' theory to the environment show that ecosystems and its services need to be included, at least to some extent, in a list of primary goods (e.g. Dobson 1998: 125; Visser't Hooft 2007: 88).

Rawls defines primary social goods as "a class of goods that are normally wanted as parts of rational plans of life which may include the most varied sorts of ends" (Rawls 1999a: 230), and assigns rights, liberties, opportunities, income and wealth to the category of primary goods (ib. 54). Primary goods are derived from the general assumptions about rationality and the requirements of social life (ib. 223). As persons in the original position know "the general facts about human society" (ib. 119), it can be assumed that they know about their basic needs and about their dependence on essential and non-substitutable ecosystem services to fulfill them. Therefore, persons in the original position will commonly regard essential and non-substitutable ecosystem services as primary social goods.

The question whether ecosystem services which are not essential for human survival are primary goods is less obvious. It can only be answered by thickening Rawls' "thin theory" of the good (ib. 348). A promising way to do this is by interpreting primary goods as things that enable the exertion of *basic capabilities* - substantive freedoms that people can achieve with certain primary goods (Sen 1982: 368). Amartya Sen (2009: 248) argues that the value of the environment to humans lies not only in the fulfilment of basic needs, but rather in "the

opportunities it offers to people”. The capability approach shifts attention to what primary goods do to humans, and hence to a thicker conception of the good life (ib.). The instrumental value of (essential) ecosystem services to human basic capabilities has been described by Holland (2008) as follows: “Being able to have a good health and nourishment requires that ecological systems function at a level that can sustain the provision of soil, water, and atmospheric temperature that enable agricultural production and the absorption of human produced waste (pollution). Similarly, the adequacy of human shelter is partly contingent upon the extent to which whole ecological systems can maintain the chemical composition of the atmosphere in a way that stabilizes temperatures and ensures environmental change occurs on time scales to which humans can adapt” (ib. 323). Also several cultural ecosystem services are required to exert certain basic capabilities. For instance, one can argue that exerting the basic capability “senses, imagination, and thoughts” (Nussbaum 2006: 77) requires the possibility of spiritual experience of nature and of religious practices attached to environmental monuments (Holland 2008: 323). Martin Seel's "three aspects of a good life" (1991: 311ff.) constitute a conception of basic capabilities that explicitly refers to cultural ecosystem services. Also Martha Nussbaum's list of "central human capabilities" (2006:76ff.) contains a capability related to cultural ecosystem services, the capability of "being able to live with concern for and in relation to animals, plants, and the world of nature" (ib. 77). Generally, it seems reasonable to argue that all ecosystem services which provide vital resources or conditions to human basic capabilities possess the characteristics of primary social goods. Hence, what ecosystem services fall into the category of primary goods depends on the list of human basic capabilities, and the level of generality of these basic capabilities.<sup>3</sup>

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<sup>3</sup> Even if the assembly members would - behind the veil of ignorance - know that certain ecosystem services are vital for realizing the basic capabilities of many, but not all contract partners, they would probably decide upon distributing such ecosystem services *as if* these would be primary goods. As the veil of ignorance excludes all knowledge of likelihoods, only the distribution according to the difference principle would ensure them against the eventuality of lacking a good life because of the absence of certain ecosystem services.

The distribution of social primary goods underlies the Rawlsian principles of justice decided behind the veil of ignorance. Rawls' first principle of justice refers to a system of basic liberties of citizenship - negative liberties, including freedom of thought, liberty of conscience, freedom of the person and political liberty (Rawls 1999a: 177). Rawls' second principle of justice refers to the distribution of all further primary social goods: the fair equality of opportunity principle as one part of the second principle refers to opportunities to societal positions and offices, the difference principle as the other part of the second principle refers to income and wealth (ib. 80). As rights to access ecosystem services are positive rights to tangible goods, they fall into the second subcategory and under the difference principle.

## **5. From Rawls' "A Theory of Justice" to a principle of environmental justice**

A consequent extension of Rawls' original position contains representatives from the present and (at least one) actual future generation(s) behind a complete veil of ignorance. The representatives regard ecosystem services that provide essential resources or conditions for the fulfillment of basic capabilities as primary social goods. Hence, the representatives would decide on the following abstract principle of justice regarding access rights to ecosystem services, termed *principle of environmental justice*:<sup>4</sup>

*Inequalities in the distribution of access rights to all vital ecosystem services are to be to the greatest benefit of the least-advantaged members of the present and actual future generations.*

The term "vital" relates to the ecosystem services which are required for exerting human basic capabilities. The term "benefit" relates to the degree up to which the basic capabilities can be

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<sup>4</sup> Thomas Pogge (1989: 247) has argued that the same principles of justice would be decided in the global original position as in the domestic original position. There seems to be no reason, why different principles of justice should be decided in a "cross-generational and global" original position.

attained with the provided set of ecosystem services. Here, I assume that the degree of attainability of different capabilities cannot be aggregated to a single index. This would not be consistent with the capability approach which assumes that “a life that is worthy of the dignity of the human being” requires attaining a minimum threshold of each human basic capability for each person (Nussbaum 2006: 70).

Whether future persons have access to sufficient vital ecosystem services to fulfill their basic capabilities crucially depends – besides the ecosystem funds passed on to future generations - on future population size. Therefore, Brian Barry (1999: 109) suggests that “the size of future population should be brought within the scope of the principle of responsibility”. This implies that the current institutional agents should address the stabilization of population size to fully implement the principle of environmental justice. .

### **Lifting the veil of ignorance**

The principle of environmental justice is decided in the original position behind a veil of ignorance. After lifting the veil of ignorance, three challenges arise. First, the principle of environmental justice needs to be specified for particular human-nature-systems and policy areas, considering uncertainty with regard to the future. Second, the specified principle needs to be implemented by social institutions. The principle can mark the overall aim of environmental justice that institutions should seek for, but it does not reveal institutional transformation processes necessary to achieve it. Third, individuals need to support and accept institutions which implement the principle of environmental justice. According to Rawls, the members of the community of justice have a twofold duty: "first, we are to comply with and to do our share to just institutions when they exist and apply to us; and second, we are to assist in the establishment of just arrangements when they do not exist" (Rawls 1999: 293f.). Whereas the principle of environmental justice is favorable to all rational and self-

interested persons behind the veil of ignorance, it becomes adverse to some persons after lifting it. Therefore, justice as a virtue needs to be an integral part of a conception of environmental justice in terms of responsibility for establishing and sustaining just institutions. Rawls himself assumes moral persons who are "capable of having (and are assumed to acquire) a sense of justice, a normally effective desire to apply and to act upon the principles of justice" (ib. 442). Therewith, he develops a more encompassing idea of the human as a relational and responsible person, whereas in the original position the persons only show one of their characteristics as humans, their rationality. Rawls' idea of the human therefore allows for complementing his conception of institutional justice with a conception of an *environmentally just person* based on virtue ethics (cf. e.g. Becker, in press).

## **6. Conclusion**

In this paper, I propose a conception of environmental justice that addresses the distribution of access rights to ecosystem services. I worked out three specific demands that a theory of distributive justice should fulfill to adequately cope with the distribution of access rights to ecosystem services: (i) global and intertemporal extension of the community of justice, (ii) institutional agents as claim addressees, and (iii) includability of ecosystem services as objects of distribution. I verified that Rawls' "A Theory of Justice" (1971) is an appropriate theory for deriving a conception of ecological justice. Rawls' original position can be extended to include representatives from the present and future generations, who decide on the distribution of access rights to ecosystem services. They would agree on the following principle of environmental justice: Inequalities in the distribution of access rights to all vital ecosystem services are to be to the greatest benefit of the least-advantaged members of the present and actual future generations.

Although Rawls' theory can be consistently expanded to meet all demands on a conception of environmental justice, it has two shortcomings: its mere focus on primary social goods as objects of distribution and its focus on pure institutional justice. The first can be addressed by interpreting Rawls' primary goods as necessary resources and conditions for realizing certain basic capabilities of a good life, as applied in this paper. The second can be addressed by complementing the developed conception of institutional justice with a conception of "the environmentally just person" based on virtue ethics.

The principle of environmental justice integrates the intragenerational and the intergenerational dimension of environmental justice, and constitutes a philosophically founded criterion for assessing the distributional effects of social institutions on access rights to ecosystem services. Investigating what institutional changes are needed to approach the principle of environmental justice, and how the principle can be translated into context-specific indicators, presents a challenge to interdisciplinary and transdisciplinary sustainability sciences.

## **7. Acknowledgements**

I wish to thank Stefan Baumgärtner, Christian Becker, Klara Stumpf and two anonymous referees as well as the participants of the Eighth Annual Meeting of the *International Society for Environmental Ethics* and the participants of the *Interdisciplinary Study Days. Biodiversity – Concept and Value* for critical discussion and valuable comments. Financial support from the German Federal Ministry of Education and Research (BMBF) under grants 01UN1011A/B is gratefully acknowledged.

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