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The potential limitations on its basin decision-making processes of granting self-defence rights to Father Rhine

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ABSTRACT

Recent grants of legal rights to rivers would seem to infuse traditional anthropocentric river governance with greater eco-centrism. Through a thought experiment, we scrutinize this proposition for the Rhine basin. We consider the governance implications of granting (procedural/material) rights to the river and elaborate on their implications for the three highly institutionalized regimes of the Rhine River of water quality, flooding and transport. Since we find that a shift to more eco-centrism has already occurred and since the right granted to the river would not be absolute, we deem radical transformations unlikely.

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Rights of the river; eco-centrism; decision-making; regime; Rhine

Introduction

Until recently, river basin governance globally has had an anthropocentric focus (Suykens, 2018). Recent legislative initiatives in different jurisdictions, however, have paved the way for more eco-centric approaches in which rights are bestowed on rivers and other non-human entities (Global Alliance for the Rights of Nature, 2018). In 2017, the New Zealand Parliament granted legal rights to the Whanganui River through a legislative act (Te Awa Tupua Act, 2017). In the same year, the courts of India and Colombia recognized the legal personhood of the Ganges and Yamuna Rivers and the Atrato River, respectively (Corte Constitucional, 2016; Mohd Salim v State of Uttarakhand and Others, 2017). The granting of legal personhood to non-human entities is heralded as a progressive approach that promises the protection of the rights of rivers as well as those of socially marginal or environmentally vulnerable groups. It is assumed that such a change in the legal framework could act as a transformative force for river basin governance towards more eco-centrism. Advocates see this new 'rights of the river' approach as a model to be replicated in different geographical, cultural and institutional settings (Misiedjan, 2017).

Yet we lack insight into the mechanisms through which granting rights to rivers might impact or co-evolve with existing river basin governance approaches. Moreover, the rights approach to rivers has been developed in countries where indigenous values and knowledge of the traditional custodians of the rivers are still intact to a certain

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extent (Argyrou & Hummels, 2019, this issue). Assessments of the implications of granting rights to rivers in Europe are non-existent. We explore this knowledge gap by critically scrutinizing the proposition that the granting of rights to the river will lead to a transformation in decision-making processes concerning water quality, flooding and navigation in the Rhine basin.

We will do so by conducting a thought experiment on the river Rhine. The key question we try to address is what the granting of rights to what the Germans call Vater Rhein (Father Rhine) might entail.

First, we conceptualize what in general granting rights to a river would imply for river basin management in procedural and substantive terms (next section). Then we apply this concept to the Rhine River basin and its regime, identifying procedural features (third section), as well as substantive components (guiding principles, norms and plans) with regard to water quality, flooding and transport (fourth through sixth sections). We see the Rhine River basin as a paradigmatic case (Flyvbjerg, 2006) for other highly institutionalized river basins in the Global North with defined duties and obligations in place that promote the implementation of policies and measures. Data on the Rhine regime were collected by reviewing the scientific literature and policy documents on the Rhine in Scopus by using (combinations of) search terms like 'Rhine', 'water quality', 'meandering', 'river continuity', 'groundwater governance', 'pollution', 'biodiversity', 'renaturation', 'retention areas', 'conservation', 'restoration' and 'room for the river'. Policy documents (action plans, performed measures and monitoring results) were retrieved from the website of the International Commission for the Protection of the Rhine (ICPR). In the seventh section, we discuss the potential implications for current decision-making processes of granting rights to the river. We conclude with a reflection on the tenability of the proposition presented in this paper.

Conceptualizing and operationalizing the rights of rivers

Scholarly treatments of rights of the river are still in an embryonic stage, so we need to base our conceptualization on discourses as they can be found in practice. The rights-of-the-river approach says that not only humans and animals have rights related to a river, but the river itself can have rights. Table 1 shows the different categories of river-related rights we identify, both procedural and substantive. From top to bottom, the rights become less institutionalized and more recent.

The right of humans to use the river has been (indirectly) recognized worldwide in international conventions (e.g., the United Nations Convention on the Non-navigational Uses of International Watercourses), constitutions, specific laws and common law systems (Beaumont, 2000; McCaffrey, 2001).

The conventional rights-based approach to environmental protection promotes the right of individuals or a group of individuals to a healthy environment. It is recognized by many countries through constitution, legislation or international agreements (Boyd, 2012). Procedurally, this means that the individuals whose rights are infringed by, for example, river pollution can bring their case to court for their rights to be protected. Under this environmental rights approach, protection of the environment is a by-product of protecting fundamental human rights.

The granting of rights to animals is the next and more recent step (Broom, 2011). For the first time, non-human entities have rights that are to be protected by legal custodians for their non-instrumental, intrinsic values. In a sense, the animal rights movement for granting rights to certain animal species, such as chimpanzees, seems to have paved the way for other rights-of-nature approaches, including the rights of the river. While existing cases of granting rights to rivers are to some extent idiosyncratic, the granting of rights to animals has arguably facilitated the discussion about the universal applicability of the river rights approach. From an animal rights perspective, the protection of a river is a product of our efforts to protect the substantive and procedural rights of animals.

Finally, the new approach of recognizing the rights of rivers fits with the rights-of-nature paradigm. Substantively, it recognizes the rights of ecosystems as a whole to be free from significant anthropogenic influence so their integrity is maintained. Ecuador is the first country to recognize rights of nature in its constitution. The constitution argues that nature in all its life forms has the right to exist, persist, maintain and regenerate its vital cycles (National Assembly Legislative and Oversight Committee, 2008). Bolivia recognized the rights of nature in the Law of Rights of Mother Nature in 2010, subsequently revised as the Framework Law of Mother Earth and Integral Development for Living Well. This Bolivian law enumerates seven specific rights to which Mother Earth and her constituent life systems, including human communities, are entitled: to life, to the diversity of life, to water, to clean air, to equilibrium, to restoration, and to live free of contamination (Government of Bolivia, 2012).

Applying such an approach to the rights of rivers, the Earth Law Center drafted a Universal Declaration of River Rights (Global Alliance for the Rights of Nature, 2018), in which they argue that rivers should be entitled to six specific rights: the right to flow; the right to perform essential functions in their ecosystem; the right to be free from pollution; the right to feed and be fed by sustainable aquifers; the right to native biodiversity; and the right to restoration.

These rights may help rivers fulfil certain needs to maintain their health and integrity (Wuijts et al., this issue). The rights can be enacted in various, often context-specific ways. For instance, in the New Zealand case, the river was granted property rights over its own riverbed (Vries-Stotijn et al., this issue). Procedurally, recognizing the rights of

Table 1. Different categories of river-related rights.

	Substantive rights	Procedural rights
User rights	Individuals or organizations have the right to use the river for drinking, shipping, fishing, irrigation, hydropower production and wastewater discharge.	Individuals or organizations have access to information, public participation and justice; states have access to international courts.
Environmental rights	Individuals or organizations have the right to a safe and clean environment; states have the sovereign right not to be impacted by transboundary harm.	Individuals or organizations have access to information, public participation and justice; states have access to international courts
Animal rights	Animals have the right to a healthy or clean environment for their survival.	Animals have access to information, public participation and justice (represented by guardians).
Rights of nature specific to rivers	A river has the right to be free from significant anthropogenic influence (or to remain ecologically intact).	A river has access to information, public participation and justice (represented by guardians).

nature means a river gets agency. The New Zealand case is useful to understand what these procedural rights can entail (Te Awa Tupua Act, 2017).

In the case of the Whanganui River, an office of the river representative is established, with full capacity and all the powers reasonably necessary to achieve its purpose and perform and exercise its functions, powers and duties. The river representative performs key functions, such as to act and speak for and on behalf of the river; uphold the river's status; promote and protect the health and well-being of the river; perform landowner functions for and on behalf of the river; and maintain the river register. Moreover, the river representative, in performing these functions, must act in the interests of the river; must develop appropriate mechanisms for engaging with and reporting to stakeholders with interests in the river on matters relating to the river, as a means of recognizing the inalienable connection of those stakeholders with the river; may report publicly on matters relating to the river; may engage with any relevant agency, other body or decision maker to assist it to understand, apply and implement the river's status; and may participate in any statutory process affecting the river in which a river representative would be entitled to participate under any legislation (Te Awa Tupua Act, 2017).

Getting agency also implies that non-human entities get legal standing to protect their substantive rights (Boyd, 2012). Another consequence of having legal personhood is that a river can be held liable by other involved actors. The river is to be represented at legal proceedings by two people selected by the government and the local indigenous group (*iwi*), who will act and speak on behalf of the river, and work to promote and protect its health and well-being (Te Awa Tupua Act, 2017).

The right-of-the-river approach can be seen as an operationalization of a deep ecology perspective (Naess, 1990). Granting procedural and material rights to the river implies that an eco-centric, normative stance is taken. In this moral position, humans are not above or separate from nature, but are on par with, in this case, rivers. This implies that the existing set of rights held by humans will need to be restricted and that humans will have to take on certain additional duties (or responsibilities).

Both the procedural and the material rights discussed could have implications for the governance of river basins. An actor speaking on behalf of the river will have access to political decision making and will have legal standing in courts. In terms of material rights, river basin management must consider a river's integrity and take measures accordingly.

The question is what the above could mean for the regime of the Rhine. Will it grant Father Rhine 'new guns', or only result in moderate changes? Before we can answer these questions, we must give an outline of the existing regime of the Rhine, starting with its procedural component.

The procedural component of the Rhine regime

The existing regime of the Rhine is fragmented over different levels and sectors. The Rhine originates in Switzerland, and crosses the territories of France, Germany and the Netherlands. Luxembourg discharges its waters to the Rhine through the Moselle. The Rhine watershed also covers (parts of) Italy, Austria, Liechtenstein and Belgium. Two functionally differentiated river basin organizations have been set up. The ICPR addresses

quality and quantity issues, while the Central Commission for Navigation on the Rhine (CCNR) addresses navigation issues. The European Union, representing its member states, is a formal member of the ICPR and involved in the activities of the CCNR.

Formed in 1950, the ICPR is a central coordinating body for transnational collaboration of its riparian states and develops transboundary river programmes, which are then executed by the states at a national or sub-national level. The 1963 Convention on the International Commission for the Protection of the Rhine against Pollution (Treaty of Bern), replaced by the 1999 Convention on the Protection of the Rhine, serves as the formal mandate of the ICPR. It formalizes composition, obligations, and working and decision-making procedures, states the objectives to be fulfilled by contracting parties and regulates the structure for interaction (Dieperink, 1998, 2011; ICPR, 1999). The ICPR is formally recognized as a legal entity, to be represented by its chairperson. Representatives from five member countries and the EU meet annually. Issue-specific working groups prepare these meetings. In these working groups different societal interests are represented by environmental NGOs, industry and shipping organizations, as well as power and drinking water producers. Along with 20 NGOs, Belgium, Liechtenstein and eight intergovernmental water organizations have observer status (no voting rights) during the annual conferences of the parties (ICPR, 1999; Mostert, 2009). A coordination group determines the actual planning and coordination of ICPR's work (Bernauer & Moser, 1996; ICPR, 2013). Influential in defining the political goals, agenda and work programmes of the commission is the Conference of Rhine Ministers.

Along with a set of environmental and sustainability principles, the Convention on the Protection of the Rhine sets out specific stipulations for the contracting parties, cutting across water quality, ecological and biodiversity issues (ICPR, 1999, 2017b). The central tasks of the ICPR are setting up international measuring programmes and studies of the Rhine ecosystem, if required, together with scientific institutions; issuing proposals for measures and programmes; coordinating the Rhine Warning and Alert Plan; and determining and measuring the effectiveness of actions based on monitoring published in reports and studies by contracting states.

The CCNR has existed since 1815 and is the world's oldest international organization dealing with infrastructure (Henrich-Franke & Tölle, 2011). Its main function is to foster European prosperity by guaranteeing a high level of security for navigation on the Rhine. Switzerland, France, Germany, Belgium and the Netherlands are member states. Eleven other states have observer status, while NGOs on a European scale with an interest in inland navigation may obtain the status of approved organization. This status enables them to participate in the CCNR's working parties and other activities and gives them access to the CCNR's working documents. The approved organizations are not only consulted regularly, they are also encouraged to submit their problems and proposals to the CCNR (Henrich-Franke & Tölle, 2011).

Regulations dealing with water issues have also been formed at the wider European Union level, often in close interaction with the ICPR. Within the European Union, water pollution first was addressed by developing water quality standards and uniform emission standards (EC Directive 76/464/EEC on pollution caused by certain dangerous substances discharged into the aquatic environment of the Community, and several sub-directives), the Birds and Habitat Directives, and later the Water Framework

Directive and the Floods Directive (ICPR, 2004, 2015; Junier & Mostert, 2012). Within the European Union, the European Commission has the formal mandate to initiate policy proposals, which must be approved by the European Parliament and the Council of Ministers from the 28 EU member states.

Within the wider EU regime, environmental NGOs have legal standing in court. One of the first court cases concerned chlorides discharged into the Rhine by French potassium mines, harming Dutch horticultural interests (Dieperink, 2011). The Clean Water Foundation, a Dutch NGO, together with some horticulturists and water companies, started legal proceedings in France, which eventually resulted in compensation paid by the mine owners to the horticulturists in the Netherlands. Legal standing, as well as access to environmental information and public participation in environmental decision making, is formally provided by the 1998 Aarhus Convention, which has been ratified by all Rhine riparian states.

The Rhine water quality regime

Since the 1930s, Dutch drinking water companies have raised concerns about the increasingly deteriorating water quality of the Rhine. In the 1950s and 1960s, ongoing industrial and municipal wastewater discharges and growing agricultural activity resulted in severe pollution, which prompted the Netherlands to put these issues on the agenda of the ICPR (Dieperink, 1998).

The first regulatory impulses for water pollution control and abatement in the Rhine catchment were set in the Rhine Chemicals and Rhine Chlorides Conventions (1976). The ICPR elaborated proposals with threshold values for harmful substances in wastewater discharges, following EC Directive 76/464/EEC on pollution (Dieperink, 1998, 2000; IKSR, 1976). The Chlorides Convention set concrete thresholds for chloride discharges from the Alsatian potassium mines.

Riparian states committed to mitigating the discharge of harmful chemical substances by implementing national pollution abatement programmes and water quality monitoring programmes.

Political pressure built in response to the toxic pesticides spill at the Sandoz plant near Basel in 1986, which caused major ecosystem damage and a public and media uproar. Several safety measures were implemented to prevent accidental spills, and the warning and alert system was improved (Froehlich-Schmitt, 2003). As a result, in 1987 the ICPR implemented the Rhine Action Program, with ecological (along with chemical) quality standards and measures.

Under the Rhine Action Program, which marks an important step towards integrated water management, the ICPR drafted a list of priority substances harmful to water organisms, species and drinking water production and identified their sources. It also made proposals for their abatement and set a state of the art for several industrial sectors involved in production and effluents. This led to a decisive reduction of point-source discharges and a sharp rise in the adoption of wastewater treatment plants by municipalities and industrial plants (Villamayor-Tomas et al., 2014; Wieriks & Schulter-Wülwer-Leidig, 1997).

A more eco-centric perspective of a 'living Rhine' is reflected in the Rhine 2020 programme from 2001 onwards (Buijse, Coops, & Staras, 2002; Jungwirth, Muhar, &

Schmutz, 2002). There are notions of a 'breathing river' that is 'not yet cured', which requires the 'removal of obstacles from the circuit' and a 'transplantation of green lungs' (ICPR, 2008, p. 21). This implies a major shift in concept, from a river subject to human intervention and control, to revaluing the Rhine as a living entity with a fragile ecosystem (ICPR, 2001, 2005). Considering impacts on both humans and the environment, actions focus on the reduction of gradual pollution from diffuse sources like pesticides seeping from agricultural land into the Rhine (ICPR, 2001). All riparian countries have initiated measures to reduce substance loads of micro-pollutants from municipal, agricultural and industrial activity, for instance through legal authorizations, bans or substance restrictions (ICPR, 2018; Plum & Schulte-Wülwer-Leidig, 2014).

The restoration of the natural water cycle is another focus area of a more eco-centric approach. This implies improving groundwater and sediment quality, and preventing abstraction from exceeding natural replenishment. Since groundwater pollution originates mostly from agricultural practices, measures like sustainable practices and voluntary agreements (EMAS, ISO 14001, etc.) have been promoted, aiming at reducing fertilizer application and nitrate leaching (ICPR, 2001, 2017a).

During the Sediment Management Plan of 2005–2009, a baseline assessment of the most important contaminants was performed and areas of concern with risks of remobilization were identified (Cals, Postma, Buijse, & Marteijn, 1998; Plum & Schulte-Wülwer-Leidig, 2014).

It has become clear that improvements in water and sediment quality do not result in ecological recovery without improvements in physical habitat conditions (Cals et al., 1998), and the Salmon 2000 programme addresses this issue. This programme aimed at the return of the Atlantic salmon to the catchment by the turn of the century. Since 1987, restoring the Rhine and its alluvial areas to a healthy, well-functioning ecosystem with abundant biodiversity has been a major ambition of the ICPR (ICPR, 2001, 2006; IKSR, 2013). Several measures were initiated to improve river continuity and biodiversity, including the construction of fish passes and restoration of salmon spawning and nursery areas (ICPR, 2013; Neumann, 2002; Raat, 2001). Other dedicated programmes aimed at restoring and improving biodiversity were started in Switzerland, France and Germany (Bundesamt für Umwelt, 2017; French Agency for Biodiversity, 2017; IKSR, 2013; Regierungspräsidium Karlsruhe, 2012; Staatliche Naturschutzverwaltung Baden-Württemberg, 2010). The ecological approach of the Rhine riparian states has strongly influenced EU water governance initiatives. A prominent and renowned initiative is the EU Water Framework Directive, which imposes substantive and enforceable requirements on member states regarding water quality and waters' ecological potential (ICPR, 2004, 2015; Junier & Mostert, 2012; Liefferink, Wiering, & Uitenboogaart, 2011; Newig, Schulz, & Jager, 2016). The EU Natura 2000 policy also requests the regular development and update of management plans and monitoring reports on the ecological condition of water bodies and riverbanks (IKSR, 2013; Koordinierungskomitee Rhein, 2007).

Although Rhine water quality has improved decisively over the years, and a more eco-centric approach has been applied in water quality policy, further ecological recovery remains a challenge. High-tech treatment is still needed before Rhine water can be turned into safe drinking water. De facto, the rights to be free from pollution, to

feed and be fed by sustainable aquifers, and to native biodiversity and restoration are recognized.

The Rhine flood regime

Flood defence by means of dikes used to be the dominant flood risk management strategy in the Rhine basin. Since the eleventh century dikes have been erected along the Rhine and its tributaries to reduce flood risk. The near-floods in the mid-1990s in Germany and the Netherlands prompted more holistic flood risk management. Since increasing human encroachment and activities had put a strain on available water retention areas, more 'room for the river' was required (Froehlich-Schmitt, 2003; ICPR, 2005). This implies a fundamental change in mindsets towards the acceptance of floods as part of the natural hydrologic cycle, and letting the river expand naturally during floods. Based on this perspective, river dynamics instead of human land use has become the force that at least in theory structures spatial development (Buijse et al., 2002; ICPR, 2001, 2005).

The paradigm shift in the policies of revaluing ecosystems and their services also facilitated this change in flood risk management approaches. Under umbrella concepts of holistic flood prevention, ecological and river continuity and habitat connectivity, efforts to restore the free flow in the mainstream of the Rhine up to Basel and its tributaries became popular. Holistic flood prevention aims for secure human livelihoods and ecological integrity and adopts both an anthropocentric and an eco-centric angle (Thomas & Knüppe, 2016). Its implementation is elaborated in the Rhine Action Plan on Floods and was later integrated into the Rhine 2020 programme. Its aim is to increase water retention to prevent flood damage and reduce extreme flood stages while protecting alluvial areas. Measures have been implemented at state and regional levels in Switzerland, Germany, France, Luxemburg and the Netherlands, including moving dikes back, implementing new retention areas along the Upper and Lower Rhine, reactivating and widening existing floodplains and lowering alluvial plains (ICPR, 2001, 2005). In both the Netherlands and Germany, national 'room for the river' programmes facilitated projects in several locations. The ICPR coordinated the development and implementation of national 'room for the river' plans, in line with the very open procedural prescriptions of the EU Floods Directive. According to this directive, flood risk management is a joint task of policy makers, infrastructure providers and authorities which requires collaboration across governmental levels and sectors, as well as with the wider public (ICPR, 2015).

In sum, we conclude that within the Rhine flood regime the right to flow and the right to restoration are de facto recognized.

The Rhine transport regime

Due to the favourable distribution of precipitation over the whole Rhine catchment area, water discharge levels are rather constant, and have thus offered good conditions for navigation. Over time, measures have been taken to improve navigation options. The first irreversible human interventions in the Rhine's natural conditions go back to the Roman Empire. For war purposes and respective waterway requirements, the river Ijssel was connected to the Rhine system, and a channel was dug to connect the main delta of the Rhine with the Meuse.

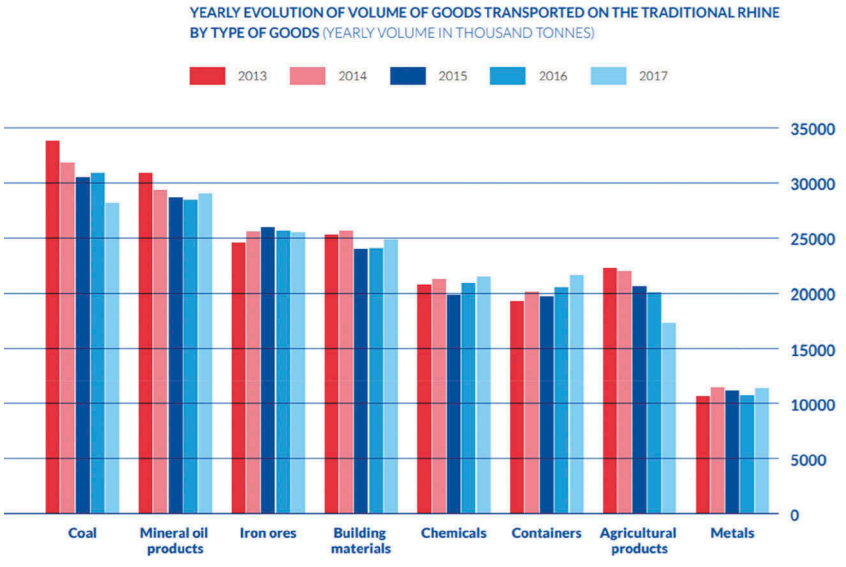

Figure 1. Yearly evolution of volume of goods transported on the traditional Rhine.
Source: Central Commission for Navigation on the Rhine, *Quarter 2: Annual Report Year 2018*, p. 39, https://www.ccr-zkr.org/13020800-en.html.

Over the years, river transport intensified. By the fourteenth century the Rhine had developed into an important cultural and economic artery of Europe (Huisman, n.d.a, n.d.b). Anthropogenic correction and straightening measures were taken to allow bigger ships to go from Rotterdam to Duisburg, the world's largest inland harbour, and further upstream as far as Rheinfelden in Switzerland. Figure 1 shows that substantial volumes are transported by river. As a result, the natural meandering of the river course was altered decisively, tributaries and alluvial arms cut off and natural river dynamics interrupted (Buijse et al., 2002; Wieriks & Schulter-Wülwer-Leidig, 1997).

The Rhine navigation regime is formalized in the Act of Mannheim (1868), which defines a single jurisdiction for shipping matters. According to this convention, shipping on the Rhine is free, sailors and fleet must be equally treated, an exemption from shipping charges is implemented, and customs clearance is simplified. Also, riparian states are obliged to maintain the Rhine's banks and must remove physical barriers to shipping. Ship safety and ship traffic regulation are standardized by the CCR. Specific regulations for the transport of dangerous substances have been developed to reduce the risk of spills from ships. The Act of Mannheim also establishes a commission to monitor these principles and has introduced specific Rhine waterway courts (CCNR, 2018).

The Rhine navigation regime specifies user rights. It is hard to argue that a de facto recognition of the rights of the river can be perceived.

Discussion: what could granting rights to Father Rhine imply for decision making?

Over the years the original characteristics of the Rhine basin were highly modified, but the previous sections also showed that procedures and policies have been developed to

counterbalance the man-made modifications of the Rhine water system. The question could be raised, what implications for the existing regime would result from granting procedural and substantive rights to the Rhine? Is it plausible that upgrading Father Rhine by granting him rights will result in a totally new game to be played in terms of decision making? To answer this question we will discuss who would be the river representative and guardian; where this agent could represent the rights of the river; how could this be done; and what the agent would demand.

Who should be the river representative and guardian, and where should this agent represent the river?

Since the river cannot speak for itself, it requires custodianship/guardianship to defend and protect its rights. In procedural terms, the Rhine would get a legal representative or a group of representatives with legal standing throughout the catchment area. Through this guardian or guardians, it could make use of the court system to settle any legal disputes arising from the breach of the rights and duties of either the river or the affected individuals or states. This means that any injury could be recognized: a polluter can be held liable for harm, and/or compensation could be ordered to benefit the river. The Rhine could be represented before national or supranational courts, such as the European Court of Justice. Guardianship also includes the duty to defend the substantive rights of the river not only in courts but also in other fora. This inevitably brings us to the question of who should represent the river. Guardianship is managed differently in Colombia, India and New Zealand. In Colombia, the court mandated the government to set up a commission of guardians, consisting of two river representatives (one community representative and one government representative) and an advisory team with scientists and NGO representatives (Cano Pecharroman, 2018). In India, the representatives appointed in *loco parentis*, human faces to protect and preserve the Ganga and Yamuna, are a mix of government representatives, academics and court members. In the case of the Whanganui River, guardianship is shared by the indigenous Iwi people and the government. It is complemented by an advisory team appointed by the trustees, the Whanganui Iwi and local authorities, and a strategy group with representatives of organizations with an interest in the river, comprising indigenous people, local authorities, river users, departments of states and environmental NGOs (Kothari & Bajpai, 2017). There are indications that the approach followed in New Zealand should be seen, at least partly, as a means of conflict resolution rather than an effort to effectuate river rights (Vries-Stotijn et al,, this issue). Finally, from the example of Ecuador we can learn that a legal representative need not be formally appointed as such. In Ecuador the court system interpreted and applied the river rights legislation (National Assembly Legislative and Oversight Committee, 2008).

So, guardianship may take many different forms. The question of guardianship seems to be inextricably linked with questions of efficiency, legitimacy and accountability (Suykens et al., this issue). Since there are no indigenous peoples identifiable in relation to the Rhine, it will be hard to decide which existing or future body should represent the river and how it should be composed. Should it be the long-established ICPR, together with the NGOs that currently have observer status to balance interests, or a new body to be established? Or could it be done on an ad hoc basis by an NGO that files a complaint in court arguing that a right of the river is being violated? In the

latter case no official guardian has to be nominated. The available examples and scholarship show that, paradoxically, the appointment of a legal representative for the Rhine will be an inherently anthropocentric and political process, not necessarily inspired solely by an inherent wish to appoint and effectuate river rights.

How should the representation be done?

Let us think through the consequences of granting rights to the river in the unlikely extreme case that procedural rights are formulated and implemented that give the river a key position in key decision-making arenas. The river will get access to decision-making procedures on the European, basin, national and sub-national levels. A key question is what this access will mean in practice (Suykens et al., this issue). Will the representative get observer status in a working group of the Rhine Commission (being the 12th out of then 21 NGOs with a green or nature profile), or will it get the same voting power as a member state in the plenary assembly of the Rhine Commission? And what about access to EU decision making? Member status is highly unlikely if not impossible, according to the Copenhagen criteria for EU accession. And since Rhine basin governance is fragmented over different levels and sectors, it could be challenging for the legal representatives to participate in all relevant decision-making fora.

What could a guardian demand?

Given that guardians have the option to defend the river's rights in front of court, we can assume that they do so in case of a detected violation of its substantive rights. Thus, we can infer that the most probable demand of these guardians would be that of restitution of the river to its state prior to this event and/or compensation for the damage. Things become more complicated when the damage was done in the past and no single culprit can be identified, which is the case for the Rhine. Could restitution then imply restoration to a healthy state prior to the violation (Kothari & Bajpai, 2017)?

India, Colombia and New Zealand are dealing with similar issues. For instance, the proposal for the National Ganga River Rights Act (Ganga Action Parivar, 2016) includes a provision to restore the ecosystem to its pre-damage state. In the Colombian case of the Atrato River, restoration of the river and its tributaries is stipulated by the new ruling. However, baseline data are absent, so there is a question about where to set the baseline of the pre-damage state to which the river should be restored (Cano Pecharroman, 2018). Another question is, who would receive compensation in the case of the Rhine, given the absence of an indigenous group to receive it? The Whanagnui River Claims Settlement Act of New Zealand, for instance, exhibits strong commitment to compensation, acknowledging the government's violations of the health of the river, and the rights and well-being of the indigenous people living on its riverbanks over the last century (Kothari & Bajpai, 2017).

In the face of these precedents, if the rights of the Rhine were to be officially recognized, actors would be facing the same questions of where to set the baseline for restitution (e.g., the pre-industrial river condition), how to deal with violations that happened in the past, and who to compensate for these past violations.

Our review has provided evidence for the de facto recognition of the rights to restoration of natural water quality (third right in the Universal Declaration); ecological recovery (second, fourth, fifth and sixth rights in the Universal Declaration); and restoration of free flow (first right in the Universal Declaration). In the Rhine basin, the shift towards a more eco-centric perspective has been institutionalized in policy programmes and associated monitoring systems and compliance mechanisms. But these are soft compliance mechanisms that focus on reporting, without strong material requirements. The latter might change if there were a river representative defending substantial river rights.

A river representative would probably request intensification of ongoing programmes for ecological recovery, asking for a strict implementation of the memorandum of the Rhine drinking water companies. According to this position paper (surface) water should be drinkable after simple filtration. Moreover, it is expected that cleaning up contaminated sediments will be higher on the agenda and that more ambitious ecological standards will be aimed for in the next round of elaboration of the Water Framework Directive. This may for instance result in strict standards limiting medicine residues in water. Further development of ecological monitoring will also be supported. Since the 1990s, under the Rhine Action Program and Rhine 2020, international and national monitoring of biological parameters has been carried out along the whole Rhine catchment. The recently adopted monitoring programme Biology 2018/2019 harmonizes monitoring efforts along the main stream by outlining minimum requirements for measuring stations and specifying sampling and data processing methods (ICPR, 2019; Koordinierungskomitee Rhein, 2007).

The representative of the Rhine might play a proactive role in the elaboration of a flood regime based on the natural flow of the river. This could include the designation of areas in which urban development will be prohibited. In its extreme form, we could see a managed retreat from flood-prone areas that are vital for the economy. In this case the guardian of the river needs enforcement power. The latter is not very likely, but we may expect the river's support for additional ways to live with the water, including houses on stilts, floating houses and other forms of flood mitigation. These options seem feasible, but restoring free flow and natural floodplains may severely conflict with transport interests, as it could result in the removal of weirs and dikes and thus lower water levels in the main channel, which could make shipping impossible.

Reinforcing the substantive rights of the river will inevitably conflict with the interests and rights of humans (see also Wuijts et al. and Chaturvedi, this issue). The latter might be restricted, which could have major implications for production and consumption, as well as land use. Hence, it seems implausible that the rights of Father Rhine would be absolute. After all, it is still humans who decide whether rights will be granted to the river and what they may imply in practice. We expect that substantive rights of the river will be viewed as relative rights, which are bound by the rights of other, human entities. So, balancing and prioritization of rights will be needed.

A key question here is how the rights of the river will be weighed against other rights and how they will be enforced. A closer look at cases in Ecuador and India provides insight into the range of real-life outcomes where the rights of nature were weighed against societal needs. Ecuador adopted rights for nature in its constitution of 2008, which the constitutional court officially recognized as central to the constitution. In

2016, citizens filed a protective action against the provincial government of Loja concerning the Vilcabamba River. The government had dumped excavation material from a road-widening project into the river, which changed the river flow and induced flooding in 2009 and 2010. Referring to the violation of nature's rights as laid down in the constitution, the court ordered the provincial government to avoid further damage in the future and to submit a plan to remediate the damage (Iorns Magallanes, 2018). In that case, the court acted as the authority on how to balance nature and other rights. In India we can see a more pragmatic approach of favouring development needs over environmental considerations. Following an order of the Uttarakhand High Court, the central government was obliged to set up a Ganga Management Board to improve river management, whose function is ambiguous. It mainly supports hydropower generation, navigation and industry at the expense of the rights of the Ganga and Yamuna (Kothari & Bajpai, 2017).

We therefore expect that the direct influence of granting rights to the Rhine, in the sense of clearly identifiable changes in decision-making processes that reflect a more eco-centric approach to river basin management, will be limited in the Rhine context. Much progress towards such an approach has been made in the past decades, to the extent that such progress is not in conflict, or even in synergy with human interests. But it seems unlikely that humans will grant rights to rivers, with corresponding implementation, monitoring and enforcement mechanisms, that severely restrict human activities for the sake of the river only.

Conclusion

We have explored whether the granting of rights to Father Rhine would transform decision-making processes concerning water quality, flooding and navigation in the Rhine basin. We find that granting rights would result in a new ecological voice in decision-making in the Rhine basin, which could team up with already present voices of environmental and nature protection organizations and drinking water companies. But a stronger ecological voice could conflict with vested interests in flood protection and navigation. Substantive changes therefore would greatly depend on the specific powers granted to the river. Due to the high stakes involved, it is quite unlikely that the river will get a decisive role in decision making over Rhine water governance issues.

The reflection in the previous section, however, suggests that the legal changes introduced by the Rhine treaties and the EU Water and Habitats Directives could act as a driving force towards a long-term transformation in river basin governance. The transformational route we envisage is a gradual one, where legal changes indirectly lead to amended policy discourses that, with some degree of uncertainty, can be expected to influence policy outcomes and impacts. Granting rights to rivers will probably not lead to radical and clearly visible impacts in the short term. A reason for this obduracy in the short term, besides existing path-dependency mechanisms, is that rights are not absolute: they are always relative, and the rights of a river need to be balanced with the rights of other entities, such as humans, other rivers, and possibly other non-human entities such as forests (if and when we grant rights to them as well). Voices that aim to effectuate the rights of the river will be counter-balanced by voices with some other aim.

In the Rhine basin some de facto implementation of material rights is already present. The voice of the river could reinforce these trends, but granting rights to Father Rhine may also be considered an example of symbolic ('feel-good') policy making. In other basins, where ecological recovery is not yet being addressed, granting rights to the river may put new ecological ideas on the governance agenda. In such cases, granting rights to the river may really make a difference. But since rivers need to be represented by people, the question arises whether a real eco-centric approach can be achieved by granting rights to rivers. In the end, it will always be humans who must interpret what the river might want.

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References

Argyrou, A, & Hummels, H. (2019). Legal personality and economic livelihood of the Whanganui river: a call for community entrepreneurship. *Water International*. doi: 10.1080/02508060.2019.1643525

Beaumont, P. (2000). The 1997 UN Convention On The Law Of Non-Navigational Uses Of International Watercourses: Its strengths and weaknesses from a water management perspective and the need for new workable guidelines. *International Journal of Water Resources Development*, *16*(4), 475–495.

Bernauer, T., & Moser, P. (1996). Reducing pollution of the Rhine River: The influence of international cooperation. *IIASA Working Paper*, *96*(7), 1-22.

Boyd, D. R. (2012). The constitutional right to a healthy environment. *Environment: Science and Policy for Sustainable Development*, *54*(4), 3–15.

Broom, D. M. (2011). A history of animal welfare science. *Acta Biotheoretica*, *59*(2), 121–137.

Buijse, A. D., Coops, H., & Staras, M. (2002). Restoration strategies for river foodplains along large lowland rivers in Europe. *Freshwater Biology*, *47*, 889–907.

Bundesamt für Umwelt. (2017). *Ökologische Infrastruktur*. Retrieved from https://www.bafu.admin.ch/bafu/de/home/themen/biodiversitaet/fachinformationen/massnahmen-zur-erhaltung-und-foerderung-der-biodiversitaet/oekologische-infrastruktur.html

Cals, M. J. R., Postma, R., Buijse, A. D., & Marteijn, E. C. L. (1998). Habitat restoration along the River Rhine in the Netherlands: Putting ideas into practice. *Aquatic Conservation: Marine and Freshwater Ecosystems*, *8*(1), 61–70.

Cano Pecharroman, L. (2018). Rights of nature: Rivers that can stand in court. *Resources*, *7*(13), 1–14.

Central Commission for Navigation on the Rhine. 2018. *Quarter 2 - Annual report YEAR 2018*. Retrieved from https://www.ccr-zkr.org/13020800-en.html

Corte Constitucional, Republica de Colombia. (2016). *Sentencia T-622/16*. Principio de precaucion ambiental y su application para proteger el derecho a la salud de lsa personas - Caso de comunidades étnicas que habitan la cuenca del ríoAtrato y manifiestan afectaciones a la salud como consecuencia de las actividades mineras ilegales. Retrieved from http://www.cortecostitucional.gov.co/relatoria/2016/t-622-16.htm

Dieperink, C. (1998). From open sewer to salmon run: Lessons from the Rhine water quality regime. *Water Policy*, *1*(5), 471–485.

Dieperink, C. (2000). Successful international cooperation in the Rhine catchment area. *Water International*, *25*(3), 347–355.

Dieperink, C. (2011). International water negotiations under asymmetry: Lessons from the Rhine chlorides dispute settlement (1931–2004). *International Environmental Agreements: Politics, Law and Economics*, *11*(2), 139–157.

Flyvbjerg, B. (2006). Five misunderstandings about case-study research. *Qualitative Inquiry*, *12* (2), 219–245.
French Agency for Biodiversity. (2017). *Trame verte et bleue*. Centre de ressources. Retrieved from http://www.trameverteetbleue.fr/echelles-action?language%3Den=en
Froehlich-Schmitt, B. (2003). *Upstream*. Koblenz: Outcome of the Rhine action programme.
Ganga Action Parivar. (2016). *Summary of the National Ganga River Rights Act (proposed), 2016*. Retrieved from www.gangaaction.org/publications/GangaRightsAct2016-English.pdf%0A%0A
Global Alliance for the Rights of Nature. (2018). *Universal Declaration of the Rights of Rivers*. Retrieved from https://www.earthlawcenter.org/river-rights/
Government of Bolivia. (2012). *Ley de Derechos de la Madre Tierra - Estado Plurinacional de Bolivia*. Retrieved from https://de.scribd.com/document/44900268/Ley-de-Derechos-de-la-Madre-Tierra-Estado-Plurinacional-de-Bolivia
Henrich-Franke, C., & Tölle, I. (2011). Competition for European competence: The Central Commission for Navigation on the Rhine and the European Economic Community in the 1960s. *History and Technology*, *27*(3), 331–352.
Huisman, P. (n.d.a.). *The Rhine, artery of Europe. Human interference in the delta and international cooperation in the basin of the Rhine in historical, present and future perspective*. The Hague, the Netherlands: Ministry of Transport and Public Works.
Huisman, P. (n.d.b.). *Human interference in the Rhine: Some historical aspects*. The Hague, the Netherlands: Ministry of Transport and Public Works.
ICPR (International Commission for the Protection of the Rhine). (1999). *Convention on the Protection of the Rhine*. Bern. Retrieved from https://www.iksr.org/fileadmin/ … /convention_on_tthe_protection_of__the_rhine.pdf
ICPR. (2001). *Conference of Rhine Ministers 2001: Rhine 2020 program on the sustainable development of the Rhine*. Koblenz: ICPR.
ICPR. (2004). *No frontiers for the Rhine. Inventory 2004 in the Rhine River basin*. Koblenz. Retrieved from https://www.iksr.org/en/water-framework-directive/inventory/reports-part-a/
ICPR. (2005). *Action plan on floods 1995–2005*. Action Targets, Implementation and Results. Koblenz. Retrieved from https://www.iksr.org/en/floods-directive/flood-risk-management-plan/
ICPR. (2006). *Biotopverbund am Rhein*. Koblenz. Retrieved from https://www.iksr.org/en/topics/ecology/habitat-patch-connectivity/
ICPR. (2008). *The Rhine*: *A river and its relations*. Koblenz. Retrieved from https://www.iksr.org/en/documentsarchive/brochures/
ICPR. (2013). *The Rhine and its catchment: An overview*. Retrieved from https://www.iksr.org/fileadmin/user_upload/Dokumente_de/Symposien_u._Workshops/IKSR_BRO_210x297_ENG_26.09.13.pdf
ICPR. (2015). *Internationally coordinated management plan for the international river basin district of the Rhine, Part A*. Koblenz. Retrieved from https://www.iksr.org/en/floods-directive/flood-risk-management-plan/
ICPR. (2017a). *Groundwater*. Retrieved from https://www.iksr.org/en/topics/water-quality/groundwater/
ICPR. (2017b). *International Commission for the Protection of the Rhine*. Retrieved from https://www.iksr.org/en/international-cooperation/about-us/observers/ngos/
ICPR. (2018). *Micropollutants in the Rhine catchment area*. Summary 2017. Koblenz. Retrieved from https://www.iksr.org/en/documentsarchive/technical-reports/reports-and-brochures-individual-presentation/news/detail/News/246-micropollutants-in-the-rhine-catchment-area-summary-2017/
ICPR. (2019). *Rhein-Messprogramm Biologie*. Koblenz. Retrieved from https://www.iksr.org/en/documentsarchive/technical-reports/reports-and-brochures-individual-presentation/news/detail/News/241-biology-monitoring-programme-for-the-rhine-20182019/
IKSR. (1976). *Übereinkommen zum Schutz des Rheins gegen chemische Verunreinigung*. Retrieved from https://www.iksr.org/de/iksr/ueber-uns/geschichte/

IKSR. (2013). *Überblicksbericht über die Entwicklung des "Biotopverbund am Rhein" 2005–2013*. Koblenz. Retrieved from https://www.iksr.org/en/topics/ecology/habitat-patch-connectivity/

Iorns Magallanes, C.J. (2018). From rights to responsibilities using legal personhood and guardianship for rivers. In B. Martin, L. Te Aho, & M. Humphries-Kil (eds), *ResponsAbility: Law and governance for living well with the Earth* (pp. 216-239). London & New York: Routledge.

Jungwirth, M., Muhar, S., & Schmutz, S. (2002). Re-establishing and assessing ecological integrity in riverine landscapes. *Freshwater Biology*, *47*, 867–887.

Junier, S. J., & Mostert, E. (2012). The implementation of the Water Framework Directive in the Netherlands: Does it promote integrated management? *Physics and Chemistry of the Earth*, *47–48*(2012), 2–10.

Koordinierungskomitee Rhein. (2007). *Bericht über die Koordinierung der Überblicksüber wachungsprogramme gem*. Artikel 8 und Artikel 15 Abs. 2 WRRL in der internationalen Flussgebietseinheit (IFGE) Rhein. Koblenz. Retrieved from https://www.iksr.org/en/topics/water-quality/monitoring-of-the-state/

Kothari, A., & Bajpai, S. (2017). We are the river, the river is us. *Economic & Political Weekly*, *LII* (37), 103–109.

Liefferink, D., Wiering, M., & Uitenboogaart, Y. (2011). The EU Water Framework Directive: A multi-dimensional analysis of implementation and domestic impact. *Land Use Policy*, *28*(4), 712–722.

McCaffrey, S. (2001). The contribution of the UN Convention on the Law of the Non-Navigational Uses of International Watercourses. *International Journal of Global Environmental Issues*, *1*(3–4), 250–263.

Misiedjan, D. J. E. (2017). *Towards a sustainable human right to water: Supporting vulnerable people and protecting water resources with Suriname as a case study* (Doctoral dissertation), Faculty of Law, Economics and Governance, Utrecht University.

Mohd Salim v State of Uttarakhand and Others. (2017). Writ Petition (PIL) No 126, 20 March 2014. the High Court of Uttarkhand. Retrieved from https://www.elaw.org/salim-v-state-uttarakhand-writ-petition-pil-no126-2014-december-5-2016-and-march-20-2017.

Mostert, E. (2009). International co-operation on Rhine water quality 1945–2008: An example to follow? *Physics and Chemistry of the Earth*, *34*(3), 142–149.

Naess, A. (1990). *Ecology, community and lifestyle*. Cambridge, UK: Cambridge University Press.

National Assembly Legislative and Oversight Committee. (2008). *Constitution of the Republic of Ecuador* (Chapter 7. Art. 71/73). Retrieved from http://pdba.georgetown.edu/Constitutions/Ecuador/english08.html.

Neumann, D. (2002). Ecological rehabilitation of a degraded large river system: Considerations based on case studies of macrozoobenthos and fish in the lower Rhine and its catchment area. *International Review of Hydrobiology*, *87*(2–3), 139–150.

Newig, J., Schulz, D., & Jager, N. W. (2016). Disentangling puzzles of spatial scales and participation in environmental governance: The case of governance re-scaling through the European Water Framework Directive. *Environmental Management*, *58*(6), 998–1014.

Plum, N., & Schulte-Wülwer-Leidig, A. (2014). From a sewer into a living river: The Rhine between Sandoz and Salmon. *Hydrobiologia*, *729*(1), 95–106.

Raat, A. J. P. (2001). Ecological rehabilitation of the Dutch part of the River Rhine with special attention to the fish. *Regulated Rivers-Research & Management*, *17*(2), 131–144.

Regierungspräsidium Karlsruhe. (2012). *LIFE-Projekt "Lebendige Rheinauen bei Karlsruhe."* Retrieved from https://rp.baden-wuerttemberg.de/rpk/Abt5/Ref56/Rheinauen/Seiten/default.aspx

Staatliche Naturschutzverwaltung Baden-Württemberg. (2010). *LIFE-Projekt "Lebendige Rheinauen bei Karlsruhe" - Ergebnisse*. Karlsruhe. Retrieved from https://rp.baden-wuerttemberg.de/rpk/Abt5/Ref56/Rheinauen/Infomaterial/2_rpk56_leb_rhein_ergebnisse.pdf

Suykens, C. (2018). *The law of the river: The institutional challenge for transboundary river basin management and multi-level approaches to water quantity management*. Utrecht: Faculty of Law, Economics and Governance, Utrecht University.

Te Awa Tupua (Whanganui River Claims Settlement) Act 2017. (2017). Retrieved from https://www.parliament.nz/en/pb/bills-and-laws/bills-proposed-laws/document/00DBHOH_BILL68939_1/te-awa-tupua-whanganui-river-claims-settlement-bill

Thomas, F., & Knüppe, K. (2016). From flood protection to flood risk management: Insights from the Rhine River in North Rhine-Westphalia, Germany. *Water Resources Management*, *30* (8), 2785–2800.

Villamayor-Tomas, S., Thiel, A., Villamayor-Tomas, S., Fleischman, F. D., Ibarra, I. P., & van Laerhoven, F. (2014). From Sandoz to Salmon: Conceptualizing resource and institutional dynamics in the Rhine watershed through the SES framework. *International Journal of the Commons*, *8*(2), 361–395.

Wieriks, K., & Schulter-Wülwer-Leidig, A. (1997). Integrated water management for the Rhine river basin: From pollution prevention to ecosystem improvement. *National Resources Forum*, *21*(2), 147–156.