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Property, Rights and Fairness

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This policy research brief draws on presentations and contributions made at the fifth workshop of the Concerted Action on Environmental Valuation in Europe entitled 'Distribution Issues and Property Rights' held at the University of Geneva, Switzerland, 9–10 July 1999, organised by Roderick Lawrence and Beat Burgenmeier.

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Front cover: An informal settlement on the outskirts of Cape Town. Property rights raise fundamental questions about issues of distribution, equity and fairness. Photo by R. Lawrence.

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Overview

Property rights are arrangements between persons regarding the uses of corporeal and incorporeal things (including knowledge). They define rights, entitlements, obligations and duties of persons, companies or an authority (the right holder) in relation to a specific entity and how the right holder and other parties (non-property-holders) are morally and legally required to act. The existence and observance of sets of rights, entitlements, obligations and duties distinguishes property from non-property and defines different types of property regimes.

During the last two decades, concern about the exploitation of biological resources has been enlarged to a concern about the ownership of knowledge related to biological resources and biodiversity.

The main role of property regimes is to define and defend the interests of right holders in relation to all other parties. For example, a fundamental principle of private property is exclusion, whereas common property enables access by the members of a group according to explicitly or implicitly understood rules. This interpretation means that property rights have an explicit concern about distribution issues, equity and fairness.

Rights are social constructs that are only effective when understood and observed by others. Property is not only determined by the characteristics of things, because many factors influence the choice of a specific regime and how it is interpreted formally by an authority and informally by people. Property rights are combinations of rights, entitlements, duties and obligations concerning possession, appropriation, control and use. They also include the ability to consume, exchange and transform, and the transfer of benefits and security. Property rights therefore play an important role in the way people use the environmental constituents of their habitat and define their livelihood. It is often argued that the absence of property rights (known as open access) results in the over-exploitation or the degradation of environmental resources. If a resource is not owned by any party, then the financial incentives favour the short-term exploitation because there is no certainty of benefiting from long-term returns and no financial incentives for long-term protection and sustenance.

Individual and communal types of property were discussed by Aristotle and Plato. Today typologies commonly refer to a series from private property (control by individual persons or companies) to common property, perhaps with some types of cooperative corporation (shared control), open access (no control), to sovereign rights (state control).

In the Baltic States, the abrupt change from private (individual) or communal rights regimes in the 1940s can be compared with the reverse shift in the 1990s to show that the series of property rights do not form a continuum and that ruptures in the series do occur.

The long-standing debate about private *versus* public property regimes in relation to environmental issues can be considered as a misleading distraction from a critical policy debate concerning the rationale for and effectiveness of regulation.

Property rights and components of the environment to which they are applied create interdependence between people and resources, as well as issues of distribution and fairness (Dommen 1993).

In most Western European countries, the sum of private claims, rights and responsibilities which exist in relation to the ownership, use and management of environmental resources usually fail to meet the collective or public need for environmental protection. One reason for this is that a firm's or an individual's interests are not automatically compatible with environmental protection, even if property rights exist. Consequently, state regulation has been deemed necessary. In contrast, in former socialist countries of Eastern Europe, it is increasingly recognised that state ownership of land, resources and industrial companies has been detrimental to the environment. It is often argued that private property rights will assist in solving the environmental challenges facing these countries.

The long-standing debate about private *versus* public property regimes in relation to environmental issues is a misleading distraction from a critical policy debate concerning the rationale for and effectiveness of regulation. In all human societies property rights of individuals and groups are subject to some kind of formal and/or informal regulation by an authority. The rationale for effective regulation is based on how legal control over resource use and environmental degradation is exercised *independently* of their ownership by private or public parties.

During the last two decades, concern about the exploitation of biological resources (such as timber or cotton) has been enlarged to a concern about the ownership of knowledge related to biological resources and biodiversity. It is estimated that at least 60 per cent of the world's poor live in areas which are ecologically vulnerable, including rural areas of low agricultural yield and tropical forests with rare species and ecosystems that are fragile (Glowka 1998).

Concern about access to basic resources by the poor for their daily needs may conflict with the objectives of national or international companies. These companies can make profits by marketing aspects of basic resources which legislation fails to protect.

Typology of Property Rights

Property is the term used to refer to a set of rights, entitlements, duties and obligations that have been socially endorsed to define a relationship between the holder of property rights and others regarding corporeal and incorporeal things. Typologies of property rights commonly refer to private property and common property but can include a variety of institutional arrangements such as open access and cooperative, corporate or sovereign rights (Glowka 1998).

In a private property regime individual persons, households or companies hold exclusive rights over the environmental entitlement but these parties can have limited rights on usage. The most fundamental principle of private property is that of social exclusion.

Common property refers to a clearly defined group of users who participate in the extraction or use of jointly held property according to explicitly or implicitly understood entitlements, duties and behavioural rules or conventions. It is sometimes argued that common property encourages communal values and social interests more effectively than private property which supports individualistic preferences and values. These arguments should be qualified by the nature of social organisation, cultural norms and behavioural codes in specific situations, because these influence the efficient functioning of all property regimes (Berkes and Folke 1998).

Joint property regimes refer to a party or group of people who jointly hold property rights. In *private joint ownership* the holders of the rights have shared but fairly well stipulated property rights through joint management. Cooperatives may belong to this type. The property regime of joint private owners is similar or equal to property rights held by private persons. National legislation needs to recognise this property regime so that it can be effective. *Collective joint ownership* is imprecisely defined and communal, e.g. traditional or customary fishing, herding or hunting rights. Customary rights to natural resources can be in conflict with national legislation.

State or public property regimes refer to the rights of governments at national, regional or municipal levels to own and regulate entitlements within the boundaries of their jurisdiction.

Open access permits access to something by any person. The lack of entitlements, duties and behavioural rules means that if the thing is a resource then it may be depleted or damaged without compensation or repair. Two kinds of open access can be proposed based on the distinction between symmetric and asymmetric externalities. A symmetric negative externality occurs when a new party transmits a negative externality to all other parties, and likewise all these parties transmit negative external effects on the new party. Common examples include fisheries, subterranean waters and grazing lands. An asymmetric externality occurs when the activities of one party have negative impacts on the activities of other parties who do not impart any reciprocal effects. This kind of externality is illustrated by air emissions from factories affecting the health of children and the elderly.

Intellectual property rights (IPRs) are private legal rights which apply to the intangible human components of culture including scientific knowledge and tacit know-how. An intellectual property right allows its holder to control the commercial use of intellectual information by others. IPRs include patents, trade secrets and plant breeders' rights.

Property can be a vehicle by which people define their social identities by possessing, sharing, using and managing environmental resources. At a given time, in a specific society, concepts such as ownership, control and use vary for different types of environmental objects (e.g. land, water, cultivated or wild plants). At another level, the distribution of objects within a society is related to those economic, legal, political and administrative means and measures (e.g. rules for exclusive ownership, codes for property transmission and claims for welfare benefits) that define the rights, entitlements and responsibilities of individuals and groups (Hann 1998).

Environmental Property Rights and Responsibilities

Human attitudes and values about property and property rights vary between cultures, within societies and over time. Property can be interpreted broadly in order to explicitly account for ecological components, cultural diversity and social differences by considering the interrelations between the environmental, economic, legal and political dimensions of human societies. For example, prior to the 19th century, in England, the indivisible and relational character of real property (derived from Germanic law) can be contrasted with customs in other European countries (derived from Roman law) about the exclusive ownership of divisible things rather than social relations between people (Hann 1998).

Private land ownership, and the rights and remedies to which this gives rise, provides no guarantee against environmental degradation.

Property regimes are not chosen only on the basis of arguments about their cost effects such as transaction costs, but also in relation to controlled or prohibited accessibility to a resource, and the preferences and values of right holders and all other parties. Policy-makers should realise that transaction costs are difficult to calculate because the demarcation of environmental resources is extremely difficult, both geographical dispersion and long-term effects are hard to quantify, and property regimes exist in a variety of forms owing to social norms and conventions.

Two types of institutional approaches have been used to deal with externalities associated with the environment. The first includes the allocation of property rights. A necessary condition for property rights to provide fiscal incentives to protect and sustain environmental resources is that the ownership of those rights has a tangible financial value. If the right holder can obtain benefits of regular resource use over the long term, then the right holder has an incentive to protect and sustain environmental resources. Otherwise failure to do so will result in financial loss by the deterioration of resource values including non-use values. It is commonly suggested that there is a market solution by which the allocation of private property rights among the parties to an external effect is sufficient to ensure an acceptable solution. This argument is challenged by those who claim that the allocation of property rights is a necessary but insufficient condition, because property regimes are simply not able to generate an appropriate measure of values including those derived from scarcity. Hence the external effects of market transactions over the long term cannot be anticipated or quantified by authorities or other parties.

Photo: R. Lawrence

Cape of Good Hope. The conservation of biodiversity in coastal ecosystems raises questions about the claims, rights and responsibilities of human beings to enjoy the benefits and values of these sensitive localities and their resources.

The second approach follows the Coase theorem whereby an inefficient market outcome due to the existence of externalities may be addressed by contractual negotiations between the right holders and other parties if transaction costs are not excessive. In recent years contractual negotiations have given countries with reservoirs of natural genetic resources a share of the revenues stemming from the commerce of products developed from access to and uses of resources by foreigners in these countries. These contracts do not require new property rights (see Box 3).

Hardin's (1968) 'The tragedy of the commons' is a classic misrepresentation of the problem of managing common property. He refers to 'common property' regimes when in fact describing 'open access'. This led to the incorrect conclusion that tenure security and incentives to manage open access over the long term are possible only using private or state property regimes. This interpretation fails to recognise that it is possible to manage environmental resources in a sustainable manner under a communal property regime. In principle, common property rights are effective when a clearly defined group of users respect a set of obligations and entitlements that regulate access to and uses of resources. In fact this is the traditional approach to successfully managing open access resources; e.g. social norms and cultural practices apply as in the cases of grazing lands in some regions of Switzerland (Stevenson 1991).

An emerging argument against private property rights is advanced by some advocates of sustainable resource use. This position requires that rights of access to environmental resources be restricted so that biodiversity can be maintained for the benefit of future generations. This shifts the emphasis of policy from rights to obligations. This is consistent with ancient Roman law which is an incomplete dominium (i.e. ownership of and control over property) but one example of a patrimonium (i.e. inheritance from our ancestors) which excludes the right to destroy (Hann 1998; Lerch 1998).

The historical experience of the United Kingdom (and other Western European countries) shows that private land ownership, and the rights and remedies to which this gives rise, provides no guarantee against environmental degradation. The history of national environmental law can be characterised as an increasing shift of emphasis from private

rights and duties to regulatory mechanisms of control by some authority. Explicit regulation has become the dominant mode of environmental standard setting. Thus increasing privatisation and state control have made appropriation of property more explicit. This dual approach has been deemed necessary to meet the shortcomings of a private ownership and a private rights approach to environmental protection.

Incorporeal Property Rights

The classic liberal model of property rights based on private ownership requires revision in contemporary society, where incorporeal IPRs have more legal and political attention than land, or other forms of physical property. IPRs were first put on the agenda of multilateral trade to deal with the commercialisation of counterfeit goods. The scope and purpose of IPRs now covers many other domains including the ownership of genetic resources. Given that trade agreements, patents and copyright are related to technological development, the issues at stake are not limited to the economy and benefit transfer. In addition, the sustenance of biodiversity, access to affordable medicines and other ethical questions about patents on life are equally relevant. Today the allocation of property rights constitutes a key component of international agreements on access to and uses of biological resources. These resources (such as medicinal plants and the knowledge pertaining to them) have traditionally been freely exchanged, both at the local and international levels. During the last two decades, rapid globalisation (see Box 1) has meant this concept of the free exchange has been eroded to allow the development of agricultural and pharmaceutical industries. Knowledge about biological resources is difficult to delimit and hard to exclusively appropriate. Therefore during the 1990s, the issue of defining property rights, in particular IPRs, has gained in political importance.

Box 1: Globalisation, Environmental and Social Problems

The term 'globalisation' refers both to current world economic trends and also a strategy for development based on the liberalisation of markets and the free flow of goods, finance and information. Free trade abolishes tariffs so that customers are meant to profit from lower prices. During the 1990s in the US a third of economic growth stemmed from trade. Current exports from the EU equal about 38 per cent of its Gross Domestic Product.

The United Nations Report on Human Development for 1999 notes that globalisation has led to social integration as well as exclusion. It has divided communities, nations and regions into those that benefit from technological, economic and social developments and those that have no access to the developments. The Report also notes that social tensions and conflicts are more likely when inequalities between the 'haves' and the 'have nots' become extreme. Inequalities are not only important in relation to employment, education, health and housing, but also with respect to social conditions (such as access to communal resources and political participation) as well as economic assets including environmental resources of all kinds.

The Report states: "The challenge of globalisation in the new century is not to stop the expansion of global markets. The challenge is to find the rules and institutions for stronger governance – local, national, regional and global – to preserve the advantages of global markets and competition, but also to provide enough space for human, community and environmental resources to ensure that globalization works for people – not just for profits." (United Nations Development Programme 1999, p. 2).

The International Trade in Biological Resources

The different types of property rights outlined above have been integrated in what constitutes today the international legal regime for the management of biological resources. This regime includes several agreements.

The Convention on Biological Diversity (CBD), enforced from December 1993, is the most important international agreement dealing with biological resources. Many 'developing' countries wanted to redefine benefit flows from the use of genetic resources. Article 15 is meant to ensure the conservation and sustainable use of biological resources and the fair and equitable sharing of any benefits from use, including appropriate access to genetic resources and the transfer of relevant technologies. The Convention also recognises the sovereign rights of states within their territories and of private/individual rights to biological resources and products stemming from them. The overall effectiveness of this Convention is, however, hampered by the generalised nature of many of its provisions and a lack of effective enforcement mechanisms (Glowka 1998).

The International Convention for the Protection of New Varieties of Plants (UPOV) was formulated in 1961, and amended in 1978 and 1991. This grants and protects breeders' rights at the national level for plant varieties which are new, distinct, uniform and stable. The 1991 revisions to the Convention removed the right of breeders to exclude others from commercialising the protected variety's propagating material (e.g. seeds). The significance of this Convention has increased since the entry into force of the TRIPs Agreement (see next page). TRIPs allows member states the choice to protect plant varieties either by patents or by an alternative system but the UPOV Convention has proved to be the preferred model. Thus, the Convention's membership has grown rapidly in recent years.

The non-binding International Undertaking on Plant Genetic Resources was adopted by the Food and Agriculture Organisation (FAO) of the United Nations in 1983. Biological resources of economic and social interest are to be explored, preserved, evaluated and made available for plant breeding and scientific purposes. Such resources are regarded as the heritage of humankind which should be made available to all without restriction. This proved unacceptable to some developed countries who affirmed the sovereign rights of countries over their biological resources and qualified the principle of free availability by recognising plant breeders' rights and farmers' rights (Glowka 1998). The Commission

Box 2: Health Promotion *versus* World Trade Agreements

Innovative pharmaceutical products may increase the hopes of persons suffering from AIDS (or other chronic diseases) but only in those countries in which sufferers can afford to meet the high cost of medication. There is an urgent need for low-cost drugs that challenge the high prices currently set by patent holders. According to *Time Magazine* (Volume 154, no. 3, 19 July 1999) in South Africa about 3.5 million of that country's 40 million citizens are HIV infected. This is three times the rate of infection in the United States of America. In 1998, the South African government enacted a new law that gives the Ministry of Health the right to authorise the parallel importing and the compulsory licensing of medicinal drugs in critical situations. However, a consortium of 40 pharmaceutical companies – a third of which are American – filed a law suit that has blocked this legislation.

This is not simply a case of liberalisation of intellectual property rights (IPRs) but also raises questions about the availability and pricing processes of the market. Pharmaceutical companies have argued that high prices are necessary to fund research for new medicines. However, important innovations have occurred outside the laboratories of these companies – in universities, national medical research institutes and foundations. The crux of the conflicting views about health promotion and patent rights of medicinal drugs goes beyond IPRs to address fundamental questions about distribution, equity and fairness.

See also 'Africa faces AIDS-ravaged populations', *International Herald Tribune*, 29 October 1998.

on Genetic Resources for Food and Agriculture are negotiating the revised instrument partly owing to significant disagreement concerning the definition of farmers' rights.

The World Trade Organisation (WTO) was instituted in 1995. Among the rules binding on methods is the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs) which formulated minimum standards in the field of IPRs. Patent protection to pharmaceutical product and process inventions is granted for a minimum of 20 years, and unauthorised copies of patented drugs are prohibited. Any member state that breaks this rule will incur trade sanctions by the WTO. Developing countries have until 2005 to conform by amending patent laws and regulations. A possible extension of this time limit can be granted to the 'least developed countries'. The TRIPs Agreement applies only to new drugs for which a patent application has been made after the entry into force of the TRIPs Agreement. The World Health Organisation (WHO) has established an Action Programme on Essential Drugs to enable people to have access to reasonably-priced basic medicines. Studies indicate that the TRIPs patents will dramatically increase prices; for example in Argentina, estimated increases are about 100 per cent (see WHO 1997).

The extension of patent protection shows that a better understanding of the possible allocation and distribution effects of different types of property rights is required. These effects cross over traditional sectorial boundaries (such as agriculture, the economy and health). A broad interdisciplinary approach is necessary but rarely applied.

Conflicts Between Property Rights and Communal Values

Box 3: Conflicting Claims and Contractual Arrangements

In each continent of the world, indigenous communities are the customary stewards of biological diversity. About three-quarters of all plants currently used to produce medicines in laboratories have been used previously by indigenous peoples. The majority of medicinal drugs are identified by ethno-botanic methods: the traditional know-how of medicinal plants can be considered as cultural capital. The suspension of common property rights for these plants has led to over-exploitation by foreigners who ignore traditional community-based resource management. These trends are meant to be addressed by the Convention on Biological Diversity (article 8).

Indigenous communities are concerned about their legal right to control the physical access of foreigners to their territory and seas, as well as access to and subsequent uses of genetic resources and associated knowledge. For example, the Madagascar rosy periwinkle provides anti-cancer medicines that are commercially sold for more than US$ 100 million annually without benefits to the country of origin. In contrast, since 1990 Body Shop International, a cosmetics company, has contracted business with two local communities of Mebengokre-Indians in Brazil. The basis of the business agreement is nut oil which is used as a raw material for a hair care product. The Body Shop has supported these indigenous communities to develop a simple manual procedure to extract oil from nuts harvested in the rain forest. The company pays a price for the oil which is higher than the world-market price and also supports a health care programme.

Source: Glowka 1998; Lerch 1998; UNDP 1999.

The principles of private property, free acting individuals, competitive markets and unregulated resource uses have been challenged by those that are accustomed to government incentives and regulation rather than *laissez-faire*. In addition, collective practices (stemming from households) rather than individual action, ensure that issues of environmental conservation, resource management and local economies appeal to national, regional and local organisations rather than multinational enterprises or international institutions.

The model of private property rights has been challenged by many indigenous peoples (see Box 3). They include 300 million persons dispersed on the five continents of the world. Indigenous peoples have rights that are fundamentally collective rather than private. This means that an indigenous person cannot sell a part of the community's land or the traditional knowledge that has been passed down through generations. Traditional knowledge and cultural heritage are grounded in history, traditions, values and behaviour (Berkes and Folke 1998). A common property regime, as used by many indigenous peoples, avoids environmental degradation because of social norms conferring not only entitlements but also defined obligations. There are numerous examples of how indigenous peoples use (and have used for millennia) resources in a sustainable manner. These examples contradict claims that privatisation or state control are the only possibilities for governing common property resources (Berkes 1989).

Innovations in medicinal drugs and food production that are based on genetic diversity have commonly relied on access to biological resources. Access is usually regulated by national governments using legislation, especially property laws. However, access to genetic material of biological entities has been left uncontrolled. Exploitation of genetic resources can be undertaken without sharing benefits derived from their use with the country of origin, or those individuals or indigenous communities who have provided access. In fact such groups may even be excluded from future use where genetic resources are patented by the exploiters. A major aim of the Convention on Biological Diversity is to redefine historical benefit flows stemming from uses of genetic resources by integrating such distribution issues (Glowka 1998).

Rights of Nature

In contrast to human rights, which have been clearly enshrined in international law, the rights of non-human organisms and abiotic constituents of the environment (rights of Nature) are less clearly defined. There are diverse cultural, social and historical perceptions of the interrelations between humans and the environment. In the western world, philosophers have considered the moral rights of Nature. Acceptance of these rights means the obligations stemming from them need to be accepted and represented in legal, political and institutional deeds. Today there are many institutions and authorities in Europe and elsewhere that act on behalf of the environment and wildlife. Although environmental entities cannot represent themselves in legal action, humans can define and defend rights for non-human things. This raises the issue of conflicting environmental values and how they should be incorporated in decision-making processes. Thus, the rights of non-human entities are contrasted with the rights of human beings to enjoy using and exploiting the environment (Posey 1999).

Defining property rights involves incorporating moral values and being prepared to debate the set of morally considerable entities.

The extent to which economists, lawyers, policy-makers and others accept that moral standing be given to non-human entities remains controversial. The development by ecologists and social scientists of the concept of ecosystem health seems to equate ecosystems to people in that they are then more than mechanical production systems and as entities can be harmed (i.e. be given poor health). Thus natural capital maintenance becomes more than preservation of useful engineering features, and this might also be described as value within ecosystems themselves. When confronted by the possibility that non-human existence may have some value in and of itself, the tools of cost-benefit analysis have been used to claim this is approximated by human willingness to pay for a poorly defined concept of another entity's existence. However, these same tools can be used to show the presence of rights-based positions (Spash 2000). Thus, the motives given for being willing to pay for species protection can include utilitarian and rights-based reasoning where the latter defends species' rights to protection from harm.

Attempts to extend the economic model to include any occurrence of wider concepts of value and claim that all relevant values can be included in a comprehensive cost-benefit analysis achieve reification (see Policy Research Brief 1). The point here is that concepts are misrepresented, e.g. equating intrinsic value to existence value. Many aspects of the debate over non-humans apply also to other entities with silent voices in the political and economic process and in particular future generations of humans. Thus, defining property rights involves incorporating moral values and being prepared to debate the set of morally considerable entities.

Values, Property and Pricing the Environment

In any society, the dominant value system supposes a corresponding set of property rights and the weights attributed to proprietory assets including the benefits derived from them. Policy-makers cannot avoid dealing with rights of access to and uses of natural resources. This means environmental resources can be interpreted in terms of conflicts of interest and values between individuals and between groups – including future generations and non-humans (see Dommen 1993). For example, cases of conflict are prevalent where technological innovation is occurring within biotechnology and the traditional petro-chemical industry. These are conflicts over the meaning of the environment rather than merely legal battles over ownership. For example, genetically modified crops are being widely resisted because the integrity and meaning of the environment is threatened. The economic response is to try and value the level of resistance in terms of people's willingness to pay (WTP) to avoid the damages or their willingness to accept (WTA) compensation for the damages. The emphasis is on monetary valuation and pricing. This approach accepts all values are commensurable and can be traded regardless of their meaning or content. Consequently, it claims that all protesters can be 'bought-off' at the right price (see Policy Research Briefs 1 and 4).

Valuation is dependent on the societal and institutional context. Therefore the transposition of financial calculations from one locality to another must be treated with caution.

The literature on environmental valuation shows that real or assumed property rights do influence the valuing of resources, and that people may have specific preferences about which type of authority structure should be used to make decisions about the allocation of resources. There are different logics for market transactions related to private and public property, as well as the public or private provision of services. This means that valuation is dependent on the societal and institutional context. Therefore the transposition of financial calculations from one locality to another must be treated with caution (see Policy Research Brief 8). In addition, the implicit choice of a property right has value implications. First because there is a recognised discrepancy between WTP and WTA which economic theory fails to explain. This may be attributable to an endowment effect and the psychological impact of ownership. Thus, buying an item owned by somebody else is different from selling the same item which is owned

by oneself. More dramatically, value difference can be related to the rejection of the trade-off approach and beliefs in fundamental rights. These beliefs may be expressed in terms of lexicographic preferences where choices are made on the basis of an absolute ranking rather than indifference between options (see Policy Research Brief 4). Hence economic trade-offs, assumed to be universal, may be rejected and environmental degradation regarded as an erosion of well-being which cannot be adequately compensated.

Recognition of the range of property rights regimes coupled with how they are applied using social norms and behavioural rules has implications for the current approaches being advocated for expressing environmental values.

The standard economic approach to valuation has also failed to recognise communal values which have been discussed above in terms of indigenous communities and the traditional management of resources. Thus, recognition of the range of property rights regimes coupled with how they are applied using social norms and behavioural rules has implications for the current approaches being advocated for expressing environmental values. For example, social norms mean an observed *status quo* in terms of existing property rights may be rejected as inappropriate by the wider community who have a different norm as their reference point; e.g. existing pollution should be cleaned up by polluters despite the fact they may have been polluting for decades.

Policy Recommendations

The definition and administration of property rights involves political and moral choices that have distributional consequences involving issues of equity and fairness. It is necessary to move beyond the interpretation of property relations between humans in order to consider property and distribution issues in an ecological perspective. Property rights should not be interpreted only in relation to formal legal codes which play a major role in western societies, but not all countries. A broader interpretation is necessary in order to include the environmental and social contexts in which these legal codes coexist with social rules and conventions as well as authoritative structures. This should include the definition and distribution of rights, entitlements, obligations and duties.

A more comprehensive typology of property rights of genetic/physical resources and intellectual property is urgently required. Property rights include combinations of rights, entitlements, duties and obligations concerning possession, appropriation, control, use as well as the ability to consume, exchange and transform, the transfer of benefits and security. Thus the definition and observance of property rights regimes should be considered in relation to many factors including which party should be assigned the rights and how they are to be observed by a formal and/or informal authority structure. Other factors include the:

- boundary definition and demarcation of the subject which may be interpreted by physical, biological, cultural and social variables;
- definition of a rights holder (an individual, a group or an institution) distinguished from all other parties that do not have ownership, control or use of the property;
- explicit formal rules about entitlements and obligations of right holders as well as the implicit social conventions and behaviour codes related to uses of property by rights holders and all other parties.

Recent policy debates about biodiversity highlight that private property regimes are not always suitable for the ownership and uses of non-renewable resources and that there is an urgent need to consider alternative resource management and allocation regimes. Legislation concerning the responsibility and liability of parties may provide inadequate protection against environmental pollution or irreversible damage to ecosystems. Both unidirectional and reciprocal externalities occur owing to the absence of clearly defined property rights, or a lack of effective enforcement. The social and ecological costs of these externalities are excluded from the production costs of goods. A necessary condition for property rights to provide incentives to protect and sustain resources is that ownership of these rights has a financial value.

Environmental policies should be concerned with the negotiation of competitive rights claims. National environmental and economic policies, and international agreements related to real and intellectual property rights in the domain of the environment ought to be reconsidered in order to overcome the limitations of current policy, such as the non-recognition of the entitlements, responsibilities and rights of all groups of actors. This means that monopoly rights (e.g. exclusive private property or state sovereignty) need to be carefully considered in relation to the social rules for the management and use of specific types of resources and tacit knowledge in precise localities.

Current international agreements concerning access to and control over biological resources need better co-ordination between the different institutions and instruments dealing with access to biological resources. Currently, each institution and agreement promotes markedly different frameworks which are in some cases incompatible. Hence, there are inherent tensions between patents proposed under the TRIPs Agreement and farmers' rights under the International Undertaking on Plant Genetic Resources. In addition, the TRIPs Agreement is backed by significant enforcement procedures within the WTO, while the International Undertaking remains at this stage a purely non-binding resolution.

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Concerted Action on Environmental Valuation in Europe (EVE)

This policy briefing series communicates the findings from nine workshops and three plenary meetings under the EVE programme. These showed the diversity of research currently being undertaken in the area of environmental values and their policy expression. The type of information relevant to the decision process extends from ecological functioning to moral values. Thus a range of approaches to environmental valuation, from ecology to economics to philosophy were presented.

EVE was a 30 month project which started in June 1998 funded by the European Commission, Directorate General XII within Area 4, Human Dimensions, of the Environment and Climate RTD programme, Contract No. ENV4–CT97–0558.

The project was co-ordinated by Clive L. Spash and managed by Claudia Carter, Cambridge Research for the Environment (CRE) in the Department of Land Economy, University of Cambridge. The following research institutes were partners in the concerted action:

Bureau d'Economie Théorique et Appliquée (BETA), University Louis Pasteur, Strasbourg, France
Cambridge Research for the Environment, Department of Land Economy, University of Cambridge, UK
Centre for Human Ecology and Environmental Sciences, University of Geneva, Switzerland
Centre d'Economie et d'Ethique pour l'Environnement et le Développement (C3ED), University of Versailles Saint-Quentin-en-Yvelines, France
Centre for Social and Economic Research on the Global Environment (CSERGE), University of East Anglia, Norwich, UK
Department of Economics and Economic History, Autonomous University of Barcelona, Spain
Department of Economics and Social Sciences, Agricultural University of Norway, Åas, Norway
Department of Environmental Economics and Management, University of York, UK
Department of Philosophy, Lancaster University, UK
Department of Rural Development Studies, Swedish University of Agricultural Sciences, Uppsala, Sweden
Department of Applied Economics, University of Laguna, Tenerife, Canary Islands, Spain
Environmental Economic Accounting Section, Federal Statistical Office, Wiesbaden, Germany
Ethics Centre, University of Zurich, Switzerland
Fondazione Eni Enrico Mattei (FEEM), Milan, Italy
Istituto di Sociologia Internazionale di Gorizia (ISIG), Gorizia, Italy

The purpose of this concerted action was to analyse effective methods for expressing the values associated with environmental goods and services, ecosystem functions and natural capital, with a view to the achievement of the goals summarised in the concept of sustainability. The appropriate role of decision-makers and citizens in environmental policy-forming became a central focus in the debate over how different values should be expressed.

Titles in the EVE Policy Research Brief Series:

1 **The Concerted Action on Environmental Valuation in Europe (EVE): An Introduction**
by Clive L. Spash

2 **Conceptualising and Responding to Complexity**
by Giuseppe Munda

3 **Natural Capital**
by Martin O'Connor

4 **Conceptions of Value in Environmental Decision-Making**
by John O'Neill & Clive L. Spash

5 **Conceptualising Sustainability**
by Anton Leist & Alan Holland

6 **Property, Rights and Fairness**
by Roderick Lawrence

7 **Environmental Quality, Health and the Value of Life**
by Marc Willinger

8 **Value Transfer and Environmental Policy**
by Stale Navrud & Olvar Bergland

9 **Greening National Accounts**
by Martin O'Connor, Anton Steurer & Marialuisa Tamborra

10 **Participatory Approaches to Environmental Policy**
by Bruna De Marchi & Jerome R. Ravetz

11 **Environmental Valuation in Europe: Findings from the Concerted Action**
by Clive L. Spash & Claudia Carter