

The convention on biological diversity: A conventionalist approach

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Abstract

The erosion of biological diversity pertains to the category of problems that are brought to the fore in 'debated universes'. There are scientific controversies about their definition, import and possible solutions and they involve opposing economic interests and political strategies. A 'convention'—commonly shared values, set of definitions, rules and norms—implying a compromise among various actors and groups is needed to define and enforce policies. The Convention on biological diversity can be seen as an attempt to define such a middle ground. The rights and policy orientations it promotes are however challenged by overlapping norms and rules enacted in other arenas, such as the WTO. The purpose of this paper is to take up a conventionalist stance on the complex international regime that governs biodiversity management and conservation policies. © 2005 Elsevier B.V. All rights reserved.

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The economics of biodiversity is a fast-expanding sphere of analysis, encompassing researches ranging over a wide field, from valuation to intellectual property rights issues to the assessment of contractual arrangements and collective decision-making processes (see for example Sedjo, 1992; Pearce and Moran, 1994; Gowdy and McDaniel, 1995; Perrings et al., 1995a; Swanson, 1995; Gowdy, 1997; Bhat, 1999). In most cases, the concept or analytical

category of biodiversity is not questioned. The issues raised by biodiversity protection and management are addressed as standard resource problems. However, biodiversity as a policy field is pervaded by radical uncertainty, information problems, imbalance of power and legitimacy conflicts among irreconcilable representations and incompatible interests (Aubertin et al., 1998). These characteristics call for a 'convention', i.e. a set of commonly accepted norms, practices and institutions comprising and guiding relations of production and exchange (Boltanski and Thévenot, 1991).

To date no major study has analyzed the ideas, practices, and institutions which comprise and coor-

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dinate biodiversity conservation activities and specify constitutional rules at a global level. The purpose of this paper is to help address this lacuna, exploring how key scientific, social, political and economic actors have initiated, redirected and could further transform biodiversity policy.

This article utilizes the approach of the Convention theory to unravel the process that has led to a compromise between the divergent norms and values about biodiversity. Our analysis focuses on the Convention on biological diversity and the organizational forms and institutional arrangements it has promoted to uphold this emergent middle ground. Since the viability of this compromise depends on its ability to reconcile efficiency and equity and to devise workable rules, we shall analyze the institutional competition around and within the international regime of biodiversity.

1. 'Debated universes' and environmental 'conventions': an application of the Convention theory to environmental issues

According to Godard (1992) and Hourcade et al. (1992), environmental problems pertain either to situations that can be styled 'settled universes' or to 'debated universes'. The former category refers to several distinctive features: relevant scientific knowledge about the causes of the problem, its consequences and the responsibilities involved; a direct perception of the damages by the actors who are concerned; clear identification of and information about the interests and choices at stake. These problems also imply common knowledge about decision-making procedures, routines and working rules. These accepted universals make it possible to build a common framework for conflict resolution and problem solving. Environmental problems in 'settled universes' can therefore be addressed by traditional policies based on Pigovian or Coasian instruments.

On the contrary, ignorance and uncertainty pervade the expertise and decision-making regarding the environmental problems that pertain to 'debated universes' situations. If there is sufficient scientific knowledge about the importance of the challenges they raise, these problems still bring up major questions about their causes and consequences, and

the responsibilities involved. Their environmental impacts cannot be directly perceived. The issue is constructed through an interplay involving scientific controversy, industrial interests, political stakes and media effects. Some of the interests groups concerned—for instance future generations—cannot attend the negotiations. Moreover, the various groups or organizations standing as their presumed spokespersons often contradict each other. Collective learning is looked after within institutions created to that purpose so that knowledge production and decision-making can interact. All these characteristics make the elaboration of an appropriate policy difficult.

Godard (1992) has introduced the concept of 'environmental convention' to account for the collective decision-making process required in addressing 'debated universe' environmental issues. In this context, the word 'convention' is not used in the sense it is given by Lewis (1969)¹. It rather refers to the French literature on conventions (Dupuy et al., 1989; Orléan, 1994; Batifoulier, 2001). Orléan (1989:265) defines a convention as 'the social organization through which a community adopts common references, and produces a collective external representation on which individual expectations are based.' In the case of environmental problems in 'debated universe', the convention focuses on the aspects of the issue that are to be considered as relevant and on the possible solutions to remedy them. This collective representation of the environmental problem and the way to solve it falls within a specific institutional framework, which norms and procedures both constrain and free individual rationality and strategies. This notion is reminiscent of Commons' definition of an institution as 'collective action in restraint, liberation, and expansion of individual action' (Commons, 1931). However, the convention-*alists* rather focus on uncertainty and on the cognitive dimension of coordination problems than on power struggles, and the question of social order.

The Montreal Protocol on Substances that Deplete the Ozone Layer, the Kyoto Protocol on climate change and in this particular case the Convention on

¹ Lewis defines a convention as a self-reinforcing pattern of behaviour: everyone will play their parts given the expectation that everyone else will continue to play theirs. This notion implies common knowledge and lends itself to game-theoretic modelling.

Biological Diversity can be considered as examples of ‘environmental conventions’.

2. The erosion of biodiversity as a problem in ‘debated universe’

The erosion of biological diversity meets the distinctive features of a ‘debated universe’ problem (Antona et al., 1998). Even if species extinction is a natural phenomenon that has long been acknowledged, ecologists agree that it has dramatically increased during the last decades. The decrease in biological diversity could be explained by the conjunction of several elements: habitat destruction through changes in land use, deforestation, infrastructure and facilities development, pollution, introduction of exotic species, standardization of the production and consumption patterns, etc. The ‘sixth mass extinction’ of life forms since their appearance on Earth would be under way (Wilson, 1992). Domesticated animal and plant species have also been affected by genetic erosion. Indeed, the actual biological diversity is the result of the natural evolution of the environment but also of the selection of species by human societies. Even if their number is limited in comparison with wild species, these domesticated species are really significant for human societies, as food staples or to fulfil basic needs (e.g. fibre production, pharmaceutical uses, cosmetics).

However, there is a lasting controversy within life sciences on many facets of the problematic, including the very definition of biological diversity. Biological diversity refers to the diversity of life at several levels of organization: genes, species and ecosystems. However, it proves difficult in practice to define the exact outlines of these notions and the relations among them (Lévêque and Mounolou, 2001). Other problems are encountered when trying to measure this diversity, for which there is no universal metrics but various methods (species number, species density, etc.) used at different levels (within or among species, within or among habitats, etc.) according to the purpose of the research. Hence troubles in measuring accurately the ongoing evolutions. In fact, the actual number of species is unknown: about 1.5 millions have been identified

to date, and the estimations of the number of species still to be discovered range between 2 and 100 millions, with a preference for 10 millions. The exact rhythm of life forms extinction is also unknown and the estimated number of species disappearing each year ranges between 10,000 and 100,000. Moreover new species are discovered every year, even in the best-known taxonomic groups, and others are created through selection or genetic engineering. There is also deep scientific uncertainty about the consequences of biodiversity loss. Beyond the use of metaphors—a library (Wilson, 1985) or Noah’s Ark (Myers, 1979)—there is a controversy among ecologists about the functional role of biodiversity. In some cases the functional role of species or groups has been spotted but it is impossible as yet to demonstrate a general relation between species diversity and the working of ecosystems.

Despite these pending questions, biological diversity as a concept has left the sphere of the scientific debate to enter the public arena. One of the characteristics of the problems in ‘debated universe’ lies in the strategic use of scientific theories and hypotheses by actors belonging to the industrial and political world. This very evolution was observed in relation to biodiversity. The economic and industrial stakes attached to life forms have gained in importance since the beginning of the 1970s, mostly as a consequence of the expansion of genetic engineering. Thanks to advances in molecular biology and biochemistry, it has become possible to isolate a gene or a set of genes supposed to determine morphological or behavioural traits², and to transfer them into other organisms to endow them with sought-after characteristics. Genes have therefore been granted the status of ‘resources’ and of virtual sources for new products; they have prompted financial speculation, intensified by the myth of the ‘new economy’. Experts have forecast a turnover of several hundred billion dollars in the biotechnology sector for the next few years.³ These

² The nature of the genes has been reassessed during the last ten years. It is acknowledged today that there is no evidence of a systematic link between genes and functions.

³ According to the estimations given by Ten Kate and Laird (2000), the annual global turnover of the products derived from genetic resources (without accounting for the local markets for basic commodities) ranges between 500 and 800 billion USD.

new prospects and some striking successes in the pharmaceutical sector have aroused lust. The institutionalization of biodiversity as a global environmental problem has focused on fears of biopiracy, which is the alienation through patents of plants with well-known traditional uses without compensation or remuneration of the local communities who have provided them (Shiva, 1993). Many voices were raised to denounce the firms of the agricultural, pharmaceutical and cosmetics industries and more generally the economic interests of the North, accused of plundering the biological resources of the South. The resistance to intellectual property rights organized and a kind of front was then set up, composed with development NGOs, farmers and indigenous organizations, claiming the recognition of economic, political and cultural rights, sometimes mixed together (Boisvert, 2000).

3. The need for an ‘environmental convention’: the international negotiations about biodiversity before and after Rio

These dynamics, in progress during the 1980s, and the environmental, industrial and policy stakes attached to them made the setting up of some elements of international regulation a matter of urgency. This urgency generally goes with the problems in ‘debated universe’. Given the scope of the supposed damages and the irreversible phenomena they entail, one should not wait to have a full knowledge of the problem considered to implement a policy likely to answer it. This policy should consist in the working-out of an ‘environmental convention’ (Godard, 1992), that is a relative agreement on the knowledge and practices common to the various actors involved, in terms of diagnosis, objectives and institutional solutions or tools (norms, environmental policy instruments). These elements define more or less coercive normative frameworks that enable the action of local, national or international actors, representing public or private interests. During the 1980s, various institutions have drawn up proposals of platforms for norms and actions. It was notably the case of the International Union for the Conservation of Nature (IUCN) and of the FAO. These attempts, though they failed, have been the first

stages in a negotiation process that has lasted about ten years and has ended up, on 5 June 1992, in the adoption of the Convention on biological diversity at the Earth Summit in Rio de Janeiro. The signatories of this framework convention, which came into force in December 1993, are committed to comply with its provisions and to take part in an international regime, which takes shape with the Conferences of the Parties. The Subsidiary Body on Scientific, Technical and Technological Advice (SBSTTA) and several working groups dedicated to particular questions provide expertise. Even though the debate about the relevant policy for biodiversity is far from being closed by the CBD, the latter represents a compromise among different actors and opposing interests. This appears clearly through the three main—and possibly contradictory—objectives of the CBD: (i) defining and applying incentives for the conservation of biological diversity, (ii) favouring the instruments and actions that promote the sustainable use of biodiversity and (iii) implement tools and mechanisms to enable the access to biological resources and the fair and equitable sharing of the benefits arising from their utilization. In its attempt to handle the tensions among these three objectives, the CBD creates a precedent in international environmental law, since it is intended to turn property rights into tools for the conservation of biodiversity. In other words, it relies on a well-known hypothesis in economic theory (Perrings et al., 1995b), according to which biological diversity can be protected only if it has an economic value likely to be appropriated by concerned actors. The CBD attaches therefore great importance to the property rights over ‘biological resources’ as such but also over the techniques, knowledge and know-how that make their exploitation possible (Boisvert and Caron, 2002). The CBD also acknowledges the opposing economic and political forces and it appears as an endeavour to reconcile them. Three types of property rights are recognized in the CBD:

The national sovereignty over biological resources (Art. 3). It attests the renouncement of the ‘status of common heritage of humankind’ that some organizations (IUCN, FAO) had tried to attach to biodiversity prior to the CBD. Countries of the South had promoted this notion in the 1970s because they feared the projects that amounted to turn biodiversity into

free access resources because of their own inability to ensure an effective control over their territories. According to the preamble of the Convention, biological diversity is a ‘common concern of human-kind’, which has no specific legal meaning. The CBD restores biological resources to State sovereignty. Hence, the agreement of the State, given through ‘prior informed consent’, is necessary to have access to biological resources present on its territory. However, the access cannot be systematically refused, it should on the contrary be facilitated.

Intellectual property rights (Art. 16). There are several types of intellectual property rights, among which patents have a prominent position. A patent confers a temporary monopoly on an inventor provided his or her invention meets requirements such as novelty and industrial applications. The application of patent rights to life forms is a relatively new issue because life forms have long been considered as discoveries and as such they could not be patented. The expansion of genetic engineering has disrupted that situation. The most striking evolution in this regard has been the *Diamond vs. Chakrabarty* case, named after the microbiologist employed by General Electrics who applied for a patent on bacteria that could degrade oil in 1972. The case was taken to the Supreme Court after the rejection of the application by the United States Patent Office. The application was finally accepted after a decision pronounced on 16 June 1980, leading to a new legal conception of life forms, allowing their classification as ‘factories’, in the words used by the Court, when they are genetically modified. The way was then prepared for the patentability of life forms, which has kept on spreading ever since in the United States as well as in Europe. Patents are not the only way to protect inventions but, contrary to many other sectors, the pharmaceutical and chemical industries consider patents as efficient means to protect innovation (Guellec and Kabla, 1994). In these concentrated sectors, the competition among big industrial groups (Monsanto, Novartis, Bayer, etc.) depends on the innovation potential rather than on prices. The provisions concerning intellectual property in the CBD and the various interpretations to which they can give rise are therefore very important. Whereas some people and groups advocate a strict application of intellectual property rights, according to others,

compulsory licences should be granted to developing countries. The Convention aims at changing the rules in force and at making the transfers of technology easier. The latter provision was the reason put forward by the United States to justify their refusal to sign the Convention, arguing that the respect of patents and other intellectual property rights would not be guaranteed.

The rights of indigenous and local communities (Art. 8j). The most innovative element in the CBD lies in the proposal to create new forms of rights benefiting ‘indigenous and local communities’ who hold knowledge and practices relating to the sustainable use of biodiversity. In the atmosphere of the Rio Conference, imbued with reminiscences of the myth of the Noble savage embodying ecological virtue, traditional ecological knowledge was given special attention. Researchers, especially anthropologists, were striving to overcome the institutional barriers to have these knowledge and know-how recognized and protected. Indeed, the latter cannot be attributed to a well-defined creator, who would have invented them at a given historical moment. They are often held by groups (people, villages, professions, etc.), which boundaries are fuzzy and who are not recognized as titleholders by international statutory bodies. The work of Posey and Dutfield (1996), which is the result of a consultative process that began with the 1988 congress in Belém and continued with the ‘Earth Parliament’ in Rio in 1992, is one of the major references for many NGOs who are claiming community or indigenous rights.

This focus on the need for property rights over biological resources and related knowledge comes to adhere to the view of biodiversity erosion as a consequence of an appropriation failure. The compromise propounded by the CBD is resonant with market-oriented values. A critical assessment of this tentative ‘environmental convention’ requires an analysis of the norms and institutional arrangements it endorses. They should rest on ‘reasonable values’, conveying comprehensible and acceptable representations of equity and efficiency (Boltanski and Thévenot, 1991), to bring about workable compromises in arenas of economic conflicts (Commons, 1924). In this respect, the CBD might have been misleading; the true organization of bioprospecting

has been misrepresented and the expected benefits have probably been grossly exaggerated.

4. Bioprospecting agreements: the mirage of a decentralized sustainable management of biodiversity

In defining the rights of opposing actors and interests groups, the CBD seemed to pave the way for a contractual policy of access to biological resources. The development of lucrative bioprospecting activities was expected, along the same lines as the agreement between INBio—a semi-public institution in charge of the biodiversity of Costa Rica—and Merck that got a lot of media attention. These activities were therefore supposed to be organized on a bilateral basis, with direct contract between the actors and institutions involved, to the advantage of all the parties and to guarantee an efficient use of genetic resources. The whole issue amounted to implement the conditions of a Coasian negotiation between local communities or public authorities on the one hand, and industries of the North on the other hand (Sedjo, 1992).

4.1. The ‘green gold’ rush did not occur

Many benefits were expected from bioprospecting agreements. The development of the market for genetic resources was supposed to endow these resources, hence biodiversity as a whole, with new values and therefore to turn conservation into a profitable and economically rational activity. Bioprospecting agreements were meant to favour the access of life industries to the genetic resources of the South, in guaranteeing the recognition of intellectual property rights. Local people, endowed with formal rights over their genetic resources and related knowledge would have direct incentives to use them in a sustainable way and to maintain them. They would draw monetary as well as non-monetary benefits from bioprospecting, in terms of training or infrastructure development and their knowledge would be legally recognized. Bioprospecting was also meant to provide funding for national policies and local activities dedicated to conservation in a more effective way in resorting to private investment rather than to uncertain public

funding and foreign aid. Bioprospecting was therefore presented as the pragmatic solution to biodiversity conservation.

However, bioprospecting did not develop as expected during the decade following the CBD. It is yet difficult to estimate the scale of trade because most agreements are confidential. The agreements that have been given publicity are either those concluded by companies that meant to use them in public relations strategies or those against which NGOs have campaigned because they have led to the despoilment of indigenous resources and knowledge. These are probably extreme cases and their representativeness is difficult to settle. Other agreements have been concluded within the context of international programmes, especially the International Cooperative Biodiversity Groups (ICBG), launched in 1992 in the United States by the National Institute of Health, the National Science Foundation and USAID—which has now left the programme (Rosenthal, 1996, 1999). This programme backs bioprospecting projects focusing on natural substances involving partnership between public and private US organizations and developing countries institutions. The agreements have to provide for the prior informed consent of the local communities who supply resources and information, the formal recognition of the contribution of local knowledge to research. They must respect local laws and customs and provide for the sharing of the benefits that might arise from the sale of products drawn from local resources (Grifo and Downes, 1996). In the light of the information available (Ten Kate and Laird, 2000, 2002), the expected ‘green gold’ rush did not take place and the timeliness of basing biodiversity conservation policies on a contractual approach as initially planned should be reconsidered (Koo and Wright, 1999).

The strategic dimension of the access to the genetic resources of the South for the life industry has probably been overdrawn. The examples of biopiracy that were given a lot of media coverage at the beginning of the 1990s might have suggested that the plundering of the resources of the South was under way. The purpose of the legal framework established as an answer to this threat was less to put an end to bioprospecting activities than to redistribute their profits in a more equitable way. The alarmist assessments of the despoilment undergone by local com-

munities of the South and a few isolated agreements—including the famous Merck-INBio Agreement—have been the backdrop of all thinking about bioprospecting. They have probably conveyed a distorted notion of the possible benefits, as if these examples had a general significance and as if the redefinition and reallocation of property rights and market expansion had no effect on trade.

The first optimistic estimates of the value of plants for the pharmaceutical industry focused on the incomes drawn from the marketing of new drugs but little attention was given to the costs of bioprospecting. These costs are huge, especially when the activity is lawfully restricted, which implies new constraints and various transaction costs for the firms. Preliminary negotiations, the collection, storage and transport of samples and then of larger amounts of plants and extracts—if some of them prove promising—are time-consuming and costly. Otherwise, the research is more likely to end in the improvement of existing medicines through combinatory chemistry than in the creation of completely new products. The discovery of blockbusters generating huge profits is very rare. Finally, notwithstanding its relevance, the research on plant resources is not the only research path in the pharmaceutical industry and the resources held by the local communities in the South are not the only ones that could be explored. Accordingly, the pharmaceutical industry did not show renewed interest in bioprospecting during the last decade.

The hopes of the supporters of contractual agreements and of the countries and local communities that had counted on bioprospecting have been partly transferred to other sectors, such as cosmetics, agribusiness and the allegedly promising market of nutraceuticals. This shift does not solve the problem of the high transaction costs associated with bioprospecting nor does it get round the legal obstacles relating to the marketing of new products, which innocuousness must be demonstrated. In the cosmetic industry, the products' life is often short and the amounts of raw material needed are limited. The value added drawn from the plants is smaller than in pharmaceutical industry and contractual relations are likely to be shorter.

Since the profits generated by bioprospecting are not substantial, the benefits in terms of biodiversity

conservation and payment for local knowledge expected from their redistribution cannot be observed. The countries of the South and the communities who hold potentially promising resources for bioprospecting are in competition with one another, while on the demand side the multinational companies are in oligopoly positions. This situation entails a dumping risk. In most cases, local communities sorely feel the lack of legal expertise and even of basic information on the objectives and expected benefits of bioprospecting. They cannot negotiate on a fair basis complex agreements over resources which economic potential is often unpredictable. The marked asymmetry between the holders and the users of the resources in terms of power, competition and expertise jeopardize considerably the possibility to reach fair and mutually profitable agreements (Boisvert, 2002). Consequently, the monetary benefits for local communities are particularly uncertain. As for the benefits in kind, they are often limited and their perpetuation after the end of the contract is seldom anticipated. Bioprospecting leads to research that does not often concern the people who have supplied the resources; its purpose is rather to develop treatments for solvent patients, mostly in industrialized countries. On the contrary, the commoditization of traditional resources and knowledge, the setting up of the organization required to negotiate the agreement, the development of contacts with outsiders and the integration into transnational networks may have lasting—sometimes dismantling—consequences for local communities.

4.2. The mirage of Coasian negotiations

Beyond its limited success, the organization of bioprospecting does not take the form its promoters had reckoned (Boisvert, 2002). The agreements generally do not fit in with the Coasian negotiation model. They are not concluded only among the actors entitled to formal rights over the resources and they often involve intermediaries between the communities and the corporations: NGOs providing legal expertise to local people, researchers, brokers, public research institutions, universities, botanical gardens, foreign donor agencies, etc. The main agreement, concerning the access to genetic resour-

ces for the purpose of industrial R&D, is often accompanied with additional agreements in which the parties commit to make inventories, to start collections or to develop scientific partnership. The presence of intermediaries and the negotiation of bundles of agreements can arouse mixed interpretations. The intercession of third parties who have no formal rights to the resources in the negotiation can be perceived as an attempt to minimize the transaction costs related to bioprospecting that would as such reassure the private investors and secure fairer and faster remuneration for local communities (Rosenthal, 1996). These intermediaries would also prevent the focusing of media attention on the final users of the resources and shield the latter from—supposedly ill-founded—accusations of biopiracy, possibly harmful for their image. The status of these intermediaries is not always clear for the participants in the market; they may come forward as the final users of the resources, whereas they are the Trojan horses of unscrupulous companies (RAFI, 1994). Anyhow, their legitimacy and their representativeness are arguable. To what extent is it legitimate for an international NGO to act on behalf of indigenous people of Latin America? Whose interests do public institutions of the South that completely depend upon international aid or private donors serve? In any case, it seems erroneous to consider bioprospecting agreements as they are as a form of direct bilateral negotiation that would ensure the sustainable use of biodiversity.

The number of parties in bioprospecting arrangements, their fuzzy status, the various shapes of the agreements concluded and their debatable scope are probably linked to the low level of adaptation of the CBD to national law. Only very few countries have passed legislation of access to genetic resources and benefit sharing. There are still less national laws providing for the devolution of statutory rights over resources and related knowledge to local or indigenous communities (WIPO, 2003a). In most countries, the situation is still the same as before the CBD. It must be stressed that significant legal work is needed to implement the CBD and that the norms it requires may run counter to other international obligations, contracted through multi- or bilateral agreements or related to the TRIPS Agreement of the WTO.

4.3. *Towards a new organization of trade*

A new institutional organization develops in an attempt to offset the inadequacy of the legal framework and to remedy the drawbacks of bioprospecting as it was initially promoted (Weiss and Eisner, 1998). Programmes have been implemented to strengthen the position of the holders of genetic resources in the face of multinational corporations. The United Nations Commission for Trade And Development (UNCTAD) has launched the Biotrade Initiative in 1996 to facilitate the trade of genetic resources, to provide technical assistance and to help in defining differentiation policies, so as to improve the organization of the supply side. The idea to form a cartel of biodiverse countries in order to define concerted access and price strategies has also been put forward (Vogel, 1996, 2000). In a way it takes shape with the creation of the group of megadiverse countries gathering fifteen countries that are considered as biodiversity hotspots. The supply also tends to reorganize itself on a regional basis, through regional model laws on access to genetic resources, such as those of the Andean Community and the African Union. Other proposals focus on the measures that could be adopted in user countries to promote fairer benefit sharing. It is suggested to make some mentions compulsory in patent applications: the origin of the resources used and the contribution of indigenous or traditional knowledge to the final innovation (WTO, 2003). The need for public intervention in the regulation of the emergent market is reasserted in developing countries holding genetic resources as well as in industrialized countries. The organization of trade is therefore quite different from what had been initially foreseen, even though the prevailing policy instrument considered is still the development of trade and agreements. The mirage of a completely decentralized and contractual management of biodiversity is slowly fading and the assumptions underlying the CBD are flawed on several counts.

Besides, the CBD was meant as an umbrella convention, federating a set of more specific international instruments. It was supposed to confer an overall coherence on conservation policies. However, biodiversity use and management are partly beyond the control of the international regime established by the CBD. Conservation issues, resource marketing,

the promotion of local knowledge, the definition of indigenous rights or the reform of patent laws are also dealt with in other arenas. The interweaving of norms enacted by various organizations, the implicit hierarchies among them and the shifting priorities induced by overlapping international agendas are shaping a new regime. The capacity of the compromise on values and institutional arrangements established by the CBD to stand out and compel recognition as an ‘environmental convention’ depends on its position within this legal order.

5. Which regulation regime for biodiversity?

The call of the CBD for the recognition of intellectual property rights on the products of biotechnology and for the rights of indigenous and local people embodying traditional lifestyles has soon been associated with the obligation for the countries who are members of the WTO to comply with the TRIPS Agreement. Most signatories of the CBD are also members of the WTO. They have therefore been led to define the rights they had to establish in relation to the debates under the aegis of the WTO to avoid trade sanctions. The signatories of the TRIPS Agreement commit themselves to recognize intellectual property rights and to pass national laws dedicated to their protection. The countries—especially developing ones—that would not have such laws to date can adopt several options:

Laws modelled on the existing conventional systems of intellectual property protection in force in industrialized countries (patents, trademarks, copyright, etc.). In countries where the industrial fabric is little developed and where the innovations do not meet the requirements to be patentable, the benefits that can be expected from such application are limited.

sui generis rights, intended to fit the particular features of the local economic and trade realities (Article 27(3)). This clause has often been used to try and give a worldwide statutory definition to the rights of indigenous and local communities over their resources (WIPO, 2003b). The local cultivars resulting from thousand-year-old selection and improvement processes cannot be considered as

innovations. A concern for fairness should impose the protection of farmers’ rights to these varieties to prevent their appropriation by industrial plant breeders. The *Union pour la Protection des Obtentions Végétales* (UPOV) has campaigned in developing countries to have them sign its 1991 Convention, and so adopt plant breeders’ rights—which are the protection granted by this organization—as *sui generis* rights. Consequently, in many countries, the definition of *sui generis* rights seems to amount to join the UPOV, which is well short of the actual possibilities offered by the ADPIC Agreement, that allows, at least in principle, to set up really new systems. However, the countries that set out to accept the challenge of legal innovation have often had to face opposition: most attempts have been charged with protectionism or alleged infringement of patent law. While the conception and implementation of *sui generis* rights are costly and complex processes, the acceptance of their results is most uncertain. This may have discouraged many developing countries to steer such a course.

The adoption of geographical indications, which seems to have gained followers recently. Though they are ancient and internationally recognized intellectual property rights, geographical indications are quite different from conventional industrial property rights. Indeed, they concern mainly agricultural products. They are not meant to protect innovation but the reputation of products, linked to the place in which they originate and to the local know-how associated with their production. They might therefore be more appropriate than industrial property rights to protect traditional varieties and related knowledge (Downes and Laird, 1999; Escudero, 2001). The countries that consider that solution still need to have products that meet the conditions of such a protection and they must be ready to invest for the defence of the local products and the interests of their producers.

The property rights called for by the TRIPS Agreement are trade-related rights contributing to the free movement of commodities through the ban on infringement of production processes or products and the prohibition of the usurpation of names or trademarks. They are meant to favour market development. Using

the TRIPS Agreement framework to protect biological resources or traditional knowledge implies a prior consent to their possible commoditization. This amounts to consider that the conservation of biodiversity and related knowledge implies the development of their market value.

Wider-ranging research on the protection of traditional knowledge is led at the WIPO (WIPO, 2001). This institution investigates the possibilities of defensive protection of traditional knowledge, i.e. the methods to prevent its being considered as public domain or its privatization through patents (WIPO, 2003b). The solutions envisaged are for instance to make out community registers, data banks and inventories with restricted access.

The conservation of plant genetic resources for food and agriculture comes under the authority of the FAO that has recently set up a multilateral system that protects some plants considered as vital for the world agriculture and endowed with a special status preventing the constitution of monopolies for the supply of their genetic resources. Though this system cannot be adapted directly to 'wild' biodiversity, this evolution makes a breach in a policy promoting bilateral decentralized resource management. Even if this is no sudden turnabout in resource policy, there is a return to multilateralism that had been dismissed during the last decades because of its alleged inefficiency.

The evolutions of the enforcement of the CITES or of the Framework Convention on Climate Change are also likely to influence the trends followed in the application of the CBD. The easing of restrictions on endangered species trade, the prevailing representation of protected areas as conservation tools and the development of markets of emission quotas to fight against climate change all contribute towards the definition of a doctrine about resource management that affects the CBD. In addition to international treaties, many multilateral or bilateral agreements—the so-called TRIPS-plus—exert an influence in terms of conservation or intellectual property.

Finally the capacity of transnational actors for having their informally binding norms turned into national laws should not be underestimated. Especially transnational firms can take advantage of regulatory competition to impose on developing countries rules that come under the *lex mercatoria*, which is established by private arbitration courts. Transnational

NGOs and even global mass media operate on different legal fields and the norms they create may as well in the long run get transnational binding force.

The biodiversity conservation policies finally enforced depend upon the legal context as a whole, the hierarchy eventually reached among the norms, including non-statutory ones, the networks of obligations the countries have contracted and their application agendas. At present, the trade obligations determined by WTO seem to prevail but the priorities might evolve under political pressure exerted by professional organizations, protest movements or the public opinion. The values and priorities propounded by the CBD do not feature high in the 'market convention' which is *de facto* governing the qualification of biological resources and associated knowledge. The CBD compromise is in jeopardy and the resulting regime cannot therefore be considered as a 'convention' as defined by the eponymous theory.

6. Conclusion

The purpose of this paper was to contribute to a conventionalist analysis of biodiversity policy. It has resulted in introducing several specific concepts. The erosion of biological diversity can be perceived as a global problem in a 'debated universe' that requires therefore an 'environmental convention', covering some aspects of the issue as well as means to answer it. However, ten years after the Rio Conference, this tentative 'convention' is far from being settled. The prospects opened by biotechnologies have surely been overestimated. Moreover there is competition among the bodies and negotiation arenas turning on intellectual property rights. As the authors who have worked on 'environmental conventions' have shown it (Hourcade et al., 1992), the decisions finally made might be completely out of touch with the problem as it had been initially formulated. It has been the case with acid rain in Europe. Biodiversity as a policy field could as well undergo such an evolution.

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