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ECONOMIC VALUATION OF NATURE

THE PRICE TO PAY FOR CONSERVATION?

A CRITICAL EXPLORATION

Jutta Kill, biologist by formal education, has worked as activist, campaigner and researcher since 1993. She combines academic and action research with campaigning in support of forest communities whose traditional economies and ways of life are threatened by deforestation and false solutions to the deforestation and climate crises. Her research has highlighted the role of voluntary certification schemes, carbon markets and the new economy of nature in maintaining ecologically unequal trade and the associated violation of human rights and rights to land and use of peoples' traditional territories. Since 2000, she has contributed to analysis showing how the trade with pollution permits is a false solution to the climate crisis and has documented the local impacts of numerous projects that produce emission credits traded in international greenhouse gas emissions markets. Recent documentation includes reports on so-called REDD and biodiversity projects in Latin America and Africa. She currently lives in Berlin, Germany. [jutta@gn.apc.org]

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No Financialization of Nature Network
June 2014

Discussion in the No Financialization of Nature network and with colleagues and friends at the World Rainforest Movement helped bring this publication about. Particular thanks go to Larry Lohmann for his insightful comments and suggestions.

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INTRODUCTION:
ECONOMIC VALUATION OF NATURE

Words like 'Natural Capital Accounting', 'Financialization of Nature', 'Ecosystem Services' and 'Biodiversity Offsets' are part and parcel of the 'Green Economy'. They are rapidly becoming part of the staple vocabulary of the nature conservation debate. However, these expressions lack true meaning; the concepts that underpin them are obscure, and subject to 'pick-and-choose' interpretation by vested interests. Surprisingly, there has been remarkably little public debate about these new ways of presenting nature, despite the potentially far-reaching implications. Groups resisting the destruction of woodlands and other natural areas, which is justified with compensation in a supposedly comparable location elsewhere are calling attention to the divergence between abstract concepts and their application. This publication aims to contribute to the emerging public debate bolstered by these local struggles. It will highlight some of these assumptions, claims and arguments on which this 'new economy of nature' is built.

BOX 1: WHAT'S WRONG WITH *NATURE*?

"Nature" is central to the debate – yet the word itself presents considerable challenges to the critical user. "Nature" is more than just a word it is a concept, a social construct that embodies a hidden meaning which often hinders constructive debate about values and valuation of "nature". Indeed, most indigenous and oral languages have no equivalent word. They have specific names for specific places. Sometimes there are even different names for the same place, depending on the specific aspects of the web of life in a specific location that is being referred to. The word "Nature" tends to obscure aspects that place names make explicit. A place name can indicate how a particular location both shapes and is shaped by specific human and non-human interaction, use and memories. Therefore, it is not surprising that the word "nature" triggers different interpretations, images and associations in different peoples' minds. The values arising from these images and associations also differ, as they stem from social norms combined with individual experiences and memories with the specific location. When Canadian government officials defended the government's claim to Gitskan territory, a Gitskan Elder asked them; *"If this is your land, where are your stories?"* The Elder then told a story in Gitskan, the language of his people. The writer Edward Chamberlin described the encounter; *"All of a sudden everyone understood…even though the government foresters didn't know a word of Gitskan, and neither did some of his Gitskan companions. But what they understood was more important: how stories give meaning and value to the places we call home; […]. They also understood the importance of the Gitskan language, especially to those who do not speak it*[1]*."* The abstract concepts of "land" or "nature" cannot capture the specific distinctiveness of a location, as captured in memories and

1 J. Edward Chamberlin (2003): If This Is Your Land, Where Are Your Stories? Reimagining Home and Sacred Space. Pilgrim Press. P.1.

stories. This is an important distinction; the rise of the 'new economy of nature' discourse means that "nature" has become shorthand for 'wild places largely undisturbed by human interference, rich in biodiversity and therefore high conservation value'. This is the type of "nature" that conservationists favour, the type preserved in national parks or nature reserves. Nature from which plentiful 'ecosystem services' can be abstracted and their economic value extracted. It is this high conservation value (HCV) nature and its 'ecosystem service' packages that capital considers worth keeping and integrating into its production system.

Following a lengthy dispute with local communities, an oil palm company in Indonesia accepted sparing HCV forests from conversion to oil palm production. The response to the decision, from a *Muara Tae* village leader neatly captured the gap between the abstract concept of 'nature' and the distinctiveness of a specific place: *"[…] this HCV assessment is only to survey certain areas and only protects certain areas based on their own desires. As for us here, all of the territory of Muara Tae has a high value. The forests in Muara Tae´s territory all have great potential. Besides that, it´s really for the community. The territory of Muara Tae is a daily source of livelihood. For farming, for gardening. So if you want to find high value, all of Muara Tae has value."*[2]

"Nature" can easily exclude many places that hold great value to people, even if the place does not score highly on the high conservation value or 'ecosystem service' scale. For this reason, the word is used sparingly and reluctantly throughout the publication.

Chapter 1 provides an overview of different initiatives such as the Millennium Ecosystem Assessment, Natural Capital Accounting projects or The Economics of Ecosystems and Biodiversity (TEEB). All of them attempt to determine the economic value of "nature". Classical '**P**ayment for **E**nvironmental **S**ervice' (PES) schemes to maintain water reservoirs for cities like New York or Vancouver are briefly described. In addition, there are more recent variations: natural capital accounting initiatives and changes to environmental and planning laws that introduce biodiversity banks and trading exchanges for compensation through 'offset' credits. On comparing the different schemes, it becomes clear that the PES label is being applied to economic valuation and payment schemes with little in common. In fact, they frequently rely on methods other than the calculated economic values for determining the levels of payment. In addition, they have different implications for social and environmental justice. The chapter ends by examining some of the methodological inconsistencies and contradictions in initiatives, which those attempting to assign economic value to "nature" are insisting are mere difficulties and gaps in data availability that can be resolved. In particular, it explores the contradictions involved in the claim of being able to know what would have happened in the absence of an 'offset' project. This is something that lies at the core of any 'offset' credit, whether carbon, biodiversity, water or forest restoration.

2 Manufacturing Consent. Video produced by NGO Environmental Investigation Agency, EIA, in support of the indigenous community of Muara Tae, in East Kalimantan, Indonesia, of the abuses of oil palm company First Resources Ltd thought its subsidiary PT Borneo Surya Mining Jaya (PT Borneo) http://vimeo.com/52941829

Chapter 2 introduces some of the architects, builders and helpers involved in the construction of this new economy with nature.

Chapter 3 uncovers why the economic valuation of nature initiatives are prime examples of 'doing without learning'. Biodiversity 'offset' initiatives in particular are being advanced rapidly in spite of an impressive track record of failure.

Chapter 4 attempts to debunk five of the commonest claims and arguments about a new economy with nature. It begins with the claim that; *'The only way to save nature is to show its economic value*', and then explores the problems with the assumption that; '*Economic valuation is a separate process from pricing nature. '*Advocates of this view claim that one can safely engage in the former, and then pull the plug when allies in the economic valuation process use these same methodologies and arguments to value natural places, using them to 'put a price tag on nature.' Some suggest even greater levels of commoditisation. This would mean the full financialization of forests, wetlands, peat lands, rivers and other natural places through the creation of biodiversity markets. Priced placeholders of 'ecosystem services' would become traded assets within the capitalist production system. The argument; *'Let's face it – the forest was going to be destroyed anyway. Making companies pay for the destruction they cause is better than nothing,'* uses a similar logic. It seems to ignore the politics of power and motivations driving the development of biodiversity banks and green trading exchanges like the 'Bolsa Verde Rio'. Instead, it advocates a cynicism that is of little help to movement-building for change towards social and environmental justice. The next section examines what has happened in the carbon market, where the claim that *'offsets should only be used as a last resort'* was a common defence from conservation groups that supported compensation through 'offsets'. The chapter concludes with the argument that *'some valuation is needed for determining compensation after damage, e.g. because of an oil spill.*'

Chapter 5 reflects on the importance of drawing a line in the sand, and saying 'No' to 'Biodiversity Offsets', to 'Valuation of Nature' and to 'Financialization of Nature'. The geographer Morgan Robertson, citing fellow geographer Nicholas Blomley, urges caution: "*It is one thing to point out the abundant absurdities in reducing ecosystems to commodities. […] 'to stop here is to risk ignoring the ways in which such absurdities organize the world for us in often brutally efficient and powerful ways.'*" The reality of the early examples of 'trading in environmental services' already proves this point. They should provide sufficient reasons for saying 'No' to more of the same. Saying 'No' to economic valuation of the web of life and the diversity it contains is also an important affirmation. It says "Yes" to acknowledging the interconnections between the human and the non-human that shape a specific location and that make nature in one place distinct and individual from nature in another location. It also affirms that the web of life must be treasured and respected, and that its continuing destruction must be resisted. This resistance demonstrates that there is – and always has been – a majority who value the particular "nature" at risk; those values run deeper than knowing the economic or monetary value of certain selected units of 'services' isolated from this web of life. However, their voices are routinely ignored when decisions are being taken to destroy a forest, a river, a meadow, a swamp or a mountainside.

Chapter 6 provides a list of articles, reports, films and other audiovisual material for further information.

1. FROM PAYMENT FOR ENVIRONMENTAL SERVICES TO NATURAL CAPITAL ACCOUNTING, BIODIVERSITY BANKS AND OFFSET TRADING EXCHANGES

"*The goal is to transform environmental legislation into tradable instruments.*"[3]
Pedro Moura Costa, Bolsa Verde Rio de Janeiro

The introduction of carbon trading – the opening of the carbon cycling capacity of the Earth to economic valuation and trading on financial markets[4] – provided a significant boost to initiatives that present "nature" in economic terms. Under the logic of these initiatives, nature is divisible into distinct ecosystems, consisting of fungible units of biodiversity, carbon, water, species or 'natural beauty'. Carbon markets have become the model and reference point, specifically cited when advocating the inclusion of ever more elements of the web of life into capital markets. Similar attempts to (re-)organise (power) relations in human society are evident in other areas, including health, education, transport, fisheries, agriculture and infrastructure. Health, for example, is witnessing a slow but steady transformation, with care relations first being expressed in economic terms and then turned into fragmented services, increasingly available only in exchange for payment.[5] The arguments advanced to justify this transformation are twofold; either that existing cultural and regulatory mechanisms have failed or that market-based instruments for service delivery are more cost-effective. It is often implied that by reducing state intervention, the service provision or the protection of natural areas is left to a more efficient 'free market'. This is in spite of ample evidence showing that the state itself plays a key role in this transformation from community co-operation and regulation to commercially oriented, market-based, 'service' delivery.[6]

The Kyoto Protocol, the international climate treaty that set numerical targets for greenhouse gas emissions, facilitated the establishing of carbon markets for trading units of greenhouse gas equivalents, $CO_{2e.}$ Two international conferences in Rio de Janeiro, Brazil, played an equally important role in initiatives promoting an economic perspective of "nature": The Convention on Biological Diversity (CBD) was adopted at the 1992 Earth Summit; 20 years later, the 2012 Rio+20

3 Pedro Moura Costa, co-founder of carbon offset company Ecosecurities and founder of Bolsa Verde Rio de Janeiro. [http://www.bvrio.org/site/].

4 For more information and critique of the carbon market, see among others: CarbonTradeWatch [http://www.carbontradewatch.org/publications/carbon-trading-how-it-works-and-why-it-fails.html]. CornerHouse [http://www.thecornerhouse.org.uk/resource/endless-algebra-climate-markets]. FERN [http://www.fern.org/designedtofail].

5 Ursula Huws (2012): Crisis as capitalist opportunity: new accumulation through public service commodification. Socialist Register Vol. 48, 2012.

6 Vatn et al. (2011): Can markets protect biodiversity? An evaluation of different financial mechanisms.

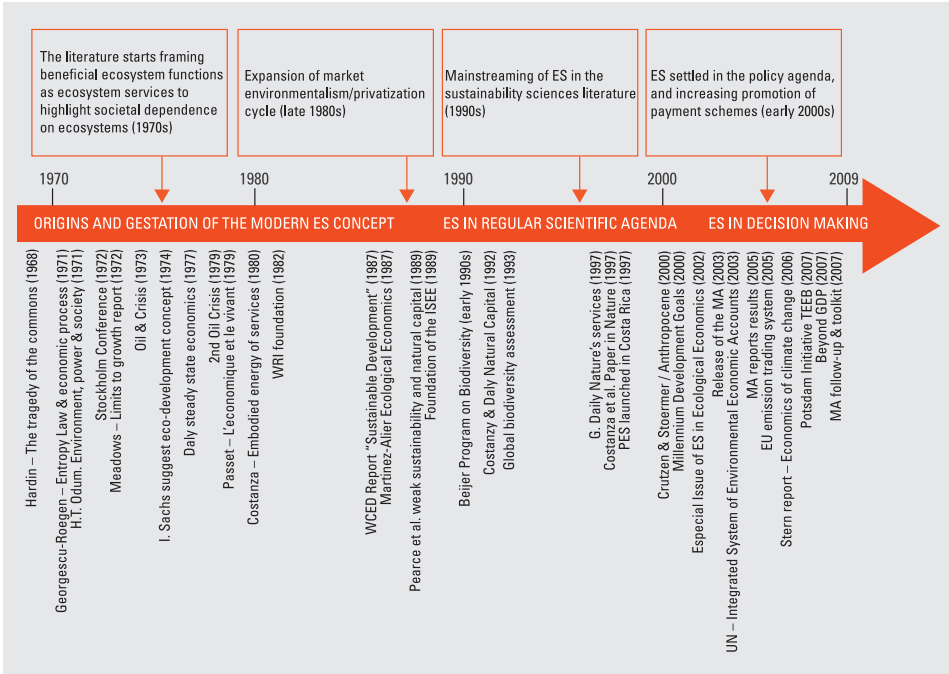
conference provided an important meeting point for proponents of the 'Green Economy' concept. This includes the suggestion of 'greening' destructive industrial activities via compensatory mechanisms such as biodiversity and other 'offsets'.[7] The CBD cemented a view of "nature" as a site for 'biological diversity', an idea that had been gathering momentum since the 1970s.[8] The concept of 'biological diversity' made "nature" quantifiable; the number of species found in a forest or wetland could be quantified. It also proved a small step from 'genetic diversity' – a subset of 'biological diversity' – to 'genetic resources'. From the outset, 'access and benefit-sharing' of 'genetic diversity' and the associated traditional knowledge have been a focus of the CBD. This allowed a view to take hold that distinct units (the 'genetic diversity') could be isolated from the complex web of life that is "nature", that they could be described, an economic value calculated and a price determined.

In the late 1990s, scientists working closely with institutions such as the World Resources Institute (WRI), the United Nations Environmental Programme (UNEP) and the World Bank suggested that "*the extensive needs for scientific assessments within the conventions [on Biological Diversity and to Combat Desertification, CCD] were not being met through the mechanisms then in place".* Following a series of preparatory meetings – coordinated by WRI, UNEP and the World Bank – in late 1999 a committee that included UNEP, UNDP, International Council for Science, CGIAR, World Bank, World Resources Institute, World Business Council for Sustainable Development, and World Conservation Union, passed a resolution calling for the creation of the Millennium Ecosystem Assessment (MA). In the following months, the CBD and CCD formally endorsed the MA as a mechanism to meet parts of their assessment needs. Meanwhile, in October 2000 the World Bank approved a US$2 million, four-year grant for the MA whilst UNEP agreed to provide US$200,000 per year. In February 2001, the MA commenced, and launched their findings in late March 2005. The Assessment is widely considered as a "*critical landmark that firmly placed the ecosystem services concept in the policy agenda.*" Literature on ecosystem services, as well as funding for international projects working with the concept, have subsequently multiplied. These initiatives helped frame global environmental problems generally – and the loss of 'biological diversity' and forests specifically – in economic terms, placing cost-benefit analysis as the underlying method of assessment.

7 See also Ulrich Brand & Stefan Thimmel (2012): Beautiful Green World. On the myths of a Green Economy. Luxemburg Argumente no. 3 http://www.rosalux.de/publication/38457/beautiful-green-world.html

8 Alice Vadrot (2014): The Politics of Knowledge and Global Biodiversity. London: Routledge.

STAGES IN THE MODERN HISTORY OF ECOSYSTEM SERVICES



Source: Erik Gómez-Baggethun, Rudolf de Groot, Pedro L. Lomas, Carlos Montes (2010): The history of ecosystem services in economic theory and practice: From early notions to markets and payment schemes. Ecological Economics, Volume 69, Issue 6, 1 April 2010, Pages 1209-1218

The report '*The Economics of Ecosystems and Biodiversity*' (TEEB) picked up the momentum provided by carbon markets and the anchoring of the ecosystem services concept in the policy agenda provided by the Millennium Ecosystem Assessment. The TEEB report was commissioned by G8+5 governments, hosted by UNEP and led by international banker Pavan Sukhdev. The report provided scientific gloss and economistic arguments for the claim that 'adequate reflection of the economic value of nature' would make "nature" visible to financial markets (or decision-makers, depending on the audience). The implicit assumption was that once the economic value became apparent to business and political leaders, the loss of biodiversity would be stopped. This led to a proliferation of initiatives by governments, UN Agencies and finance and extractive industries all based on the assumption that if biodiversity was ascribed economic value, protection would follow suit.

The 2012 Rio+20 summit was also an important meeting point for proponents of 'natural capital accounting', a measure proposed as alternative indicator to the GDP. The EU and the World Bank, via its WAVES programme, have launched 'natural capital accounting' initiatives. On the margins of Rio+20, 32 private banks, supported by a number of governments, launched a 'Natural Capital Declaration'.

A third strand of initiatives aiming to present a visible capital value of "nature" relate to nature protection in landscape planning and environmental legislation. Existing legal requirements for compensation in Germany, Spain, France and the UK are being modified, establishing or broadening the policy framework for 'biodiversity offsetting'. Initiatives in the Netherlands and Sweden are promoting 'offsets' as an instrument in landscape and conservation planning. Many EU countries are also implementing so-called 'Green Infrastructure' initiatives, such as the proposed Notre-Dame-des-Landes airport in France. The UK is easing its planning regulations by using 'biodiversity offsets' provided by 'habitat banks' as compensation where infrastructure or housing developments on greenfield sites destroy ancient woodlands or protected areas. The EU's Mapping and Assessment of Ecosystems and their Services (MAES) initiative requires Member States to map and assess ecosystems and their services by the end of 2014, in preparation for valuing and integrating them into accounting and reporting systems.[9] The EU's main financing instrument for nature conservation, the LIFE Programme[10], is also being amended to align the programme with the new 'economy of nature' trend. From 2014, LIFE will test a Natural Capital Finance Facility (NCFF) that will be managed by the European Investment Bank and provide funding for, among others, 'biodiversity offset' pilot initiatives. A number of EU countries have already undertaken or are in the process of conducting national TEEB assessments. Within these national studies, there are conflicts emerging over both methodology and the approach pursued by TEEB. Meanwhile, the European Environment Agency is leading a pilot 'Natural Capital Accounting' initiative. This involves selected EU countries and is due to be completed by the end of 2014. It builds on experimental standards for ecosystem capital accounting developed by the UN Statistics Division (UNSD).[11]

Natural capital accounting initiatives, economic valuation assessments of 'ecosystems', changes to statistical accounting standards and habitat banking and 'biodiversity offset' schemes are advancing in the EU. The latter two already have a long history (mainly of failure) in the USA, Canada and Australia. Brazil is pioneering this new trend with the change of its forest legislation, the Forest Code. This code now includes an option for landowners who cleared forests in excess of legal limits, and who now are obliged to restore the illegally cleared land, to buy certificates representing areas of intact forests elsewhere, where landowners have original vegetation over and above what is required by law. As the news agency Reuters reported, these forest restoration credits are "*the main asset to be traded on a new green exchange opened in Rio de Janeiro. The exchange, BVRio, was founded by Pedro Moura Costa, former owner of EcoSecurities, which once dominated the global trading of carbon credits.*"[12]

9 http://biodiversity.europa.eu/maes

10 http://ec.europa.eu/environment/life/index.htm

11 European Commission (2013): Mapping and Assessment of Ecosystems and their Services. An analytical framework for ecosystem assessments under Action 5 of the EU Biodiversity Strategy to 2020. http://ec.europa.eu/environment/nature/knowledge/ecosystem_assessment/pdf/MAESWorkingPaper2013.pdf

12 Brazil sets final rules for forest use, allows tradable credits. 7 May 2014 www.pointcarbon.com

BOX 2: WHAT IS *FINANCIALIZATION OF NATURE*?

Different definitions of "financialization" are in use. According to Epstein, "Financialization' refers to the increasing importance of financial markets, financial motives, financial institutions, and financial elites in the operation of the economy and its governing institutions, both at the national and international levels."[13]

Financalization can occur at the level of the commodity that is traded, at the level of the company, when corporations trade those items that have been turned into commodities, and it can also occur at the level of the infrastructure used to trade on a larger scale. Oil is an example where financialization is substantial with regard to all three; the oil itself as commodity, the companies that trade the oil and the infrastructure used to extract as well as trade the oil or oil derivatives. In the case of water, many large water companies show a high level of financialization. Water infrastructure – dams, storage, pipelines – is increasingly financialized (for example when private equity funds invest in small dams); and water itself as a commodity is still little financialized, though attempts at increasing financialization at the level of water as commodity can also be detected, e.g. through the setting-up of water markets or trading of water rights.

Recent financialization processes also include the aspect of fabricating additional commodities, for example, turning the earth's carbon cycling capacity into tradable carbon permits. Creating new asset classes out of these newly fabricated commodities is envisaged, among others, to facilitate continued capital accumulation.[14]

In this context, we understand 'Financialization of Nature' to presuppose a process whereby forests, woodlands, meadows, mountainsides etc. become treated as merely a collection of 'ecosystem services' including biodiversity, regulation and filtration of water, carbon storage and sequestration, the economic value of which can be calculated and expressed in monetary terms.

For example, in order to turn, certain aspects of a forest into a commodity, the forest first needs to be framed as a set of ecosystems with particular functions. In the course of the framing, these are converted into 'ecosystem services'. In the monetization process , the value of the functions that the forest provides to both humans and non-humans – and which have come to be understood as 'ecosystem services' that deliver a benefit to human beings – are expressed in monetary terms.

13 G. Epstein (2002): Financialisation, rentier interests, and central bank policy. Conference Paper for Financialisation of the world economy. Political Economy Research Institute (PERI) University of Massachusetts, Amherst, December 7-8, 2001.

14 For more discussion, see e.g. E. Gerebizza & A. Tricario (2013): Large Infrastructure to overcome the crisis? The hidden risks of the Europe 2020 project bond initiative.

Pricing and commercialization involves the further appropriation of ecosystem services. These operate by formalizing property rights to specific ecosystem services, or over the lands that produce such services. The processes frequently involve privatization. Land, the functions it provides, and that were previously in openly accessible regimes or in communal or public property regimes, have been transformed into private property. Commercialization of 'ecosystem services' – that is the creation of institutional structures for 'ecosystem services' sale and exchange – further expands the control of finance over natural areas and their use and access.

Here, financialization is understood as the entire process of increasing influence of financial actors, institutions, markets and thinking over society's perception of and approach to nature. However, some interpret financialization more narrowly, as consisting of only the trading of placeholders of these 'ecosystem service' units on exchange platforms. This involves using financial derivatives whose price develops independently from that of the actual 'ecosystem service' asset.

Contrary to common assumption, the process of financialization and commodification does not neatly progress from one stage to the next. Like other financialization processes, the financialization of nature is a contested and transient process. Those with an interest in commodification and financialization will make use of and rely upon the preparatory framing work. In these, perceptions of nature are changed, economic valuation methodologies are developed, the required data is produced (mapping, statistics) and the institutional framework is established. Often, the institutions and actors involved in the economic valuation and mapping processes exert little influence over whether and how their contributions are used in the parallel initiatives for creating the pricing, commercialization and creation of tradable assets.

Just as these processes of financialization and commodification are not as linear in progression as their models suggest, they are also not irreversible. Society decides both what to financialize and what to definancialize.[15] Historical forms of commodification that were either abolished or socially contested, include slavery and the late medieval practice of selling letters of indulgence.

For a detailed discussion of the plentiful empirical evidence that shows the effects of financialization, see Kate Bayliss's 'Financialization of water.[16]

15 D. Harvey (2005): A brief history of neoliberalism. NewYork: Oxford University Press.

16 Kate Bayliss (2013): Financialization of water. Review of radical political economics, 18 Nov 2013.

1.1. PAYMENT FOR ENVIRONMENTAL SERVICES – SAME LABEL, DIFFERENT CONTENT[17]

Many of the current initiatives to capture natural areas in economic terms refer to a concept that has been in use for decades: 'Payment for environmental services' (PES). However, this term has undergone confusing shifts in meaning. Different people use it in different ways. Indeed, arrangements described as PES turn out to have highly variable historic and social origins.

The following section uses examples to compare the characteristics of the four most common existing types of payment schemes referred to as PES. The original PES programmes used public funding to implement a public policy (I). These gave rise to PES initiatives financed by private donations or voluntary programmes for public relations purposes (II). More recently, 'offset' PES schemes, where a voluntary 'offset' payment is meant to nullify pollution considered excessive (III) or where the payment provides the permission to destroy or pollute above a legal limit (IV), have become more controversial. These latter payment schemes are often referred to as involving markets for ecosystem services (MES).[18]

1) PES TO IMPLEMENT PUBLIC POLICY THAT PROTECTS NATURAL AREAS.

These are schemes where governments use public money to pay for or subsidize restoration or protection of natural areas as a component of public policy. Some of the best-known PES examples include (a) New York City and Vancouver paying watershed owners located outside city boundaries, and therefore not bound by the cities' regulations to preserve forests vital for their water supplies; (b) the government of Costa Rica using public money raised from a tax on petrol consumption to pay landowners to restore or retain forests; and (c) the EU paying farmers to preserve biodiversity under the Common Agricultural Policy. Another frequently cited example is that of two communities in the Indian Himalayas, Kuhan and Ooch. These communities reached an agreement to protect the stream flow that both depend on (see box). In this case, although the payment is not linked to implementing public policy, it shares many of the characteristics of PES schemes, which are primarily subsidies to implement a policy that are in the interest of the public.

The amounts to be paid under PES schemes of this type are negotiated or set by the state or agreed directly amongst the parties involved. Such payments may compensate for a community's inability to ban clearcut logging or soil erosion that falls outside its jurisdiction. In the cases of NYC and Vancouver, the motivation was conventional cost-benefit analysis. This showed that it was cheaper for the water utilities to pay the owners of the forest within the watershed than it

17 A longer version of this section first appeared in WRM (2014): Trade in Ecosystem Services. When payment for environmental services delivers a permit to destroy. http://wrm.org.uy/books-and-briefings/trade-in-ecosystem-services-when-payment-for-environmental-services-delivers-a-permit-to-destroy/ and is reproduced with permission of the author.

18 Vatn et al. (2011): Can markets protect biodiversity? An evaluation of different financial mechanisms. Noragic Report No. 60. http://www.umb.no/statisk/noragric/publications/reports/2011_nor_rep_60.pdf

was to build new water treatment plants. Here, the 'service' is described in very general terms. The numbers expressing the economic value of the 'ecosystem service' of water filtration and regulation would have no bearing on the level of the payment. Instead, the money offered to forest owners is based on the cost of the alternatives to forest protection, in this case the cost of a water treatment plant. In similar arrangements, there is no direct or detailed measurement required of the quantity or quality of the specific 'service' to which payment is linked. Nor are there any attempts to determine the 'true value' of the functions and processes that the payments are meant to guarantee. Crucially, **the payment is not linked to permission to destroy or pollute above legal limits elsewhere.** Payments do not require a financial market, and no environmental commodity or asset is traded. There is no need to modify existing laws in order to create new assets or define environmental commodities. Any risk of damage to community cohesion, or restriction of rights to access and use of community territory are relatively low. However, they do exist, as the example of the PES scheme in Costa Rica demonstrates. There, better-off and larger landowners were able to gain access to the payments in the early stages of the programme, which was not the case for poorer farmers and indigenous communities. Under this type of PES, contracts specifying changes to land use are required, but obligations only last for the duration of the payments.

BOX 3: PAYMENT TO PREVENT EROSION AS PART OF COMPLEX NEGOTIATION AMONG COMMUNITIES

Two communities in the Indian Himalayas, Kuhan and Ooch, are dependent on the same river. To ensure a water supply for farming, the residents of Kuhan had built a small dam on a creek running through the village. However, the reservoir soon began to silt up, greatly reducing its capacity. Most of the silt was coming from the village of Ooch, located upstream of Kuhan, caused by soil erosion resulting from intensive cattle grazing. Under the agreement reached between the communities, Kuhan paid Ooch to ban cattle grazing on its common land for eight years. It also financed the planting of tree saplings in Ooch to combat erosion. In both villages, the entire community participated in the process, and the agreement was discussed by everyone. [19]

2) PRIVATE SECTOR DONATIONS AND GOVERNMENT PROGRAMMES NOT LINKED TO PUBLIC POLICY.

Under this type of PES, companies or public entities pay to avoid reputational damage, to 'greenwash' activities that are damaging to communities, or to reduce local opposition to future expansion of corporate activities like extraction of water, minerals, oil or coal, or construction of mega-dams or

19 Singh, Supriya (2009): "Payments for Ecosystem Services (PES) in India from the bottom-up." Published in DowntoEarth, CSE's fortnightly online magazine and at www.ceecec.net/case-studies/payment-for-ecosystem-services-pes-in-india-from-the-bottom-up/

roads. Examples include Coca-Cola and Fiji Water paying for water protection to compensate for damage to community water, either at the point where they extract it or elsewhere.

These types of PES initiatives are voluntary. In general, **no claims are made that the payment is precisely 'equivalent' in economic or ecological terms to the damage caused.** The company or public entity offering the payment determines the amount involved. As in the previous example, the numbers expressing the economic value of 'ecosystem services' within the project area have little bearing on the level of the payment. Instead, this is determined by available CSR or government budgets. Sometimes, basic indicators are used to verify the claimed outcome of the payment, but no quantification and monitoring of specific 'ecosystem services' is required. Again, there are no financial markets involved and no 'environmental services' commodity is created or traded. Contracts describing how the payment will be spent may be drawn up, but once again, these obligations only last for the duration of the payments. There are risks to community cohesion and of conflict, particularly where the payments are made by a company or public entity linked to a development or industrial activity opposed by (part of) the community.

3) VOLUNTARY PAYMENTS FOR POLLUTION OR DESTRUCTION SEEN AS EXCESSIVE.

This type of PES is funded by public institutions, individuals, NGOs and corporations that **voluntarily** choose to 'nullify' their polluting activities. Individuals or the public may consider the activities 'moral offense' or wish to avoid any reputational risk connected to above-average levels of pollution or destruction of, for example, forests. Such voluntary 'offset' payment schemes include FIFA offering 'offsets' for players and visitors attending World Cup games or for the emissions generated from the construction of new stadiums and infrastructure. Alternatively, a recording artist may buy 'offsets' for a tour or CD release, or an individual buys carbon 'offsets' because they take a flight that releases carbon dioxide, etc. In such cases, payments are not based on an estimate of how much the 'ecosystem service' in question is worth economically to any particular actor or sector (such as a city water utility), or to the economy as a whole. However, these payments are frequently advertised as relating to an estimate of the ecological value of the 'offset' credit. These kinds of estimates tend to be even more variable and highly contested than those conducted with state approval (see below). In reality, offset prices are largely based on an assessment by the broker of the clients' willingness to pay, available CSR budgets, and the cost of implementation incurred to the producer of the 'offset' credit. [20, 21]

4) PES AS PERMISSION TO DESTROY OR POLLUTE ABOVE A LEGAL LIMIT.

This type of PES scheme involves changing environmental laws to allow a company to pollute or destroy natural areas above legal limits. Contamination or destruction above agreed limits is

20 Stahl et al. (2008): Green Goal TM – Legacy Report. "In order to secure the climate neutrality of the 2006 FIFA World Cup in Germany, 92,000 tonnes of CO_2 equivalents had to be offset." P. 14 http://www.oeko.de/oekodoc/292/2006-011-en.pdf

21 Blasch & Farsi (2012): Retail demand for voluntary carbon offsets – a choice experiment among Swiss consumers. IED Working Paper 18.

deemed compliant, as long as a payment is made to enable the excess pollution or destruction to be 'offset' elsewhere. Therefore, what was previously an offence, subject to a fine or penalty, is now permissible upon payment of a fee. The fee is deemed to 'nullify' the excessive pollution or destruction. Since the law itself has given the company the permission to exceed the legal limit in return for payment of an 'offset' fee, communities affected by the extra pollution or destruction no longer have the option of taking the company to court. Once again, the price of the 'offset' credit is not based on a calculation of the economic value to any particular sector of the 'ecosystem service' represented by the 'offset' credit. Typically, there will be some official apparatus for estimating the ecological 'equivalence' of the 'offset' and the damage for which it is supposed to compensate. Again, the actual basis for the price charged will in reality include project implementation costs, the state of the financial markets and cost-benefit analyses comparing the cost of compliance with legal requirements with the payment of a 'fee' for non-compliance. The purchase of the required volume of 'offset' credits will be at the lowest possible price.

WHAT IS THE DIFFERENCE?

The fundamental difference between 'offset' PES schemes (III and IV) and the PES schemes described in I and II is, that in the former, payment buys permission to pollute or destroy natural areas above a legal limit. This fundamentally changes the nature and characteristics of the payment mechanism. This in turn has far-reaching consequences for communities participating in, or affected by, 'offset' PES schemes. Firstly, for communities in or near the location where the 'offset' credit buyer carries out its industrial or construction operations, such schemes *always* weaken the political power of them to defend themselves. Nor do the affected communities at that end of the 'offset' transaction receive any benefit from 'offset' payments for the excess levels of pollution or environmental destruction that they suffer. This makes increased environmental injustice in pollution hotspots inherent to 'offset' PES schemes. Secondly, such schemes routinely cause ecological and social damage to the community whose actions create the 'offset' credit. Rather than the promised 'win-win' agreements, these 'offset' PES schemes usually become 'big loss' agreements for part if not all of the community members where the 'offset' units are produced. This is not an 'accidental' result of poor project management. Instead, it stems directly from how 'offset' commodity production tends to interfere with other community goals.

Another fundamental distinguishing property of 'offset' PES schemes is that they change how the law treats pollution or other forms of (environmental) damage. Legislation that made pollution or destruction above a certain limit an offence punishable through fines is now transformed into legislation that permits such pollution or destruction, as long as an 'appropriate' fee is paid. This means that those who can afford the fee can buy the right to pollute above the legal limit or to destroy natural areas in ways that were previously illegal, transforming judgements of what is right and wrong into prices. In some cases, like that of 'forest restoration credits' under the Brazilian Forest Code (see below), prior wrongdoing is also legitimised. Where 'offsets' are traded in voluntary markets, no change in law is involved. However, purchasers are provided with a new form of legitimisation of what may previously have been viewed as unacceptable levels of impact or behaviour.

'Offset' PES schemes also require very different contracts to those used in PES schemes not involving 'offsets'.[22] Only in the case of 'offset' schemes do the contracts have to include legal obligations that persist beyond the period where payments are received. In other words, a community signing an 'offset' PES contract may be the obliged to maintain the same quality of the 'ecosystem service' as at the time of sale, long after payments have ceased. Where the 'offset' payment is made to allow a company to claim that it has nullified the pollution or destruction of a specific natural area caused by its operations, the 'ecosystem service' used to claim that the damage has been 'offset' must continue at the same level until the 'ecosystem service' damaged by the company's pollution or destruction has recovered. Otherwise, nature – and the climate in the case of REDD (**R**educing **E**missions from **D**eforestation and Forest **D**egradation) 'offsets' – loses out.

1.2. FROM PAYMENT FOR OPPORTUNITY COST TO BIODIVERSITY BANKS AND OFFSET CREDIT TRADING

The descriptions above demonstrate important differences between the various schemes referred to as PES. Firstly, the consequences for, and risks to, communities are very different. Secondly, the benefit that those who pay obtain in return is different. In the case of the communities of Kuhan and Ooch (see box above), discussions between two parties with comparable negotiating power led to a joint agreement where one community paid an agreed amount of money in order for the other to change a certain land use practice over a defined period of time. They also jointly worked to restore the river banks that were important for erosion control, thus improving the flow in the river that both depended upon. The payment was not based on an isolated unit of a specific 'ecosystem service', which needed to be measured and its existence and quality continuously monitored. Instead, there was a mutual agreement aimed at recovering water resources by solving an environmental problem impacting one of the two villages. In the example of New York City and Vancouver, it was an offer of payment to someone outside the city council jurisdiction, whose land use affected the water quality and quantity that the city depended upon. The payment to land owners to maintain water flow and quality in the watershed was less than building water treatment or storage facilities. Would they have argued that: "*because the cost of replacing the watershed would have been $9 billion, this is its value?*"[23] Probably not. Being able to put a number on the value of the 'ecosystem service' water regulation and filtration would have had no impact on the level of pay. Instead, the payment was determined by the cost of the alternative water treatment option(s).

22 CENSAT Agua Viva / Amigos de la Tierra Colombia carried out extensive analysis of contracts linked to REDD projects. The full article describing the CENSAT research has been published as 'Contratos REDD: Despojo ilegítimo, por vías legales' in the December 2013 issue No 79 of Biodiversidade: Leyes, políticas y economía verde al servicio del despojo de los pueblos.
http://www.wrm.org.uy/html/wp-content/uploads/2014/01/Esp_Biodiversidad_12_2013.pdf

23 G. Heal (2000) Valuing Ecosystems Services. Ecosystems Vol. 3, No. 1. P 27. Washington, DC: National Research Council.

These types of mutual arrangement at the local level are nothing new in the history of human settlements.

At the other end of the PES spectrum, nature's capacity to regulate, store carbon and sequester carbon dioxide, to regulate and filter water or to provide a home for a complex web of life has been abstracted into (and reduced to) isolated units of 'ecosystem services'. Certificates representing protection of such units can then be compared and exchanged, mixed and matched, bought and sold. The main purpose of these certificates, or 'offset' credits, is either to permit destruction of units of the 'same service' elsewhere, or to allow excessive levels of degradation of natural areas and the carbon cycling capacity of the Earth with a clear conscience. This requires the 'ecosystem service' units from different places to be fungible. Lawyers, traders and regulators need to recognise units of the same 'service' from different places as equivalent. Some PES 'offset' schemes go even further. They have devised calculations that allow 'ecosystem service' units to be defined as representing a different 'service' to be traded as if they were equivalent. For example, in carbon markets like the Clean Development Mechanism, the trading unit is one tonne of carbon dioxide equivalent – CO_{2e}. Using 'equivalent' means that the unit can come not only from reducing emissions of carbon dioxide, CO_2; but also from reducing emissions of any other greenhouse gas, such as methane. However, **because** methane's effect on the climate is different to that of CO_2 (other differences not directly related to the greenhouse effect are not even considered), it requires a conversion rate to allow emissions of the two gases to be treated as comparable. For this, scientists devised a formula that the UN has adopted meaning, that for the carbon markets, reducing one unit of methane is the same as reducing 25 units of CO_2. Once approved, these calculations allowed methane units to be traded for CO_2 units. For example, some biodiversity 'offset' programmes suggest that a single hectare of 'high quality bat habitat' can be treated as equivalent to a specific number of more than one single-hectare units of 'medium quality bat habitat'. Once the calculations are approved for biodiversity, it means that 'high quality' areas can be destroyed if someone promises to protect a larger area of 'medium quality' of the same type of habitat elsewhere. (See the example below, where the UK Secretary for the Environment argues that planting a million young trees elsewhere can 'offset' destruction of a 400-year-old woodland containing far fewer than a million trees).

In more advanced forms of such PES 'offset' markets, the 'ecosystem service' certificate is more tightly-integrated into financial markets. The 'ecosystem service' becomes a financial asset, with speculators able to bet on their future value. They can also place 'futures contracts'; options to buy a certain number of certificates representing the units of the 'service' for a certain price on a certain date in the future. They can then sell this option for a higher price, profiting from their speculation. They can also buy or sell large quantities of certificates at a low price and bet on the price going up or down as a result of the 'scarcity' or 'flood' they have created. Again, they can then sell or buy the units at a later stage at a profit. Even if communities are not directly selling the certificates on the financial markets, the price they can negotiate with the companies or NGOs that sell the 'offset' certificates for them on such financial markets will be influenced by the prices on the 'world market' for the particular 'ecosystem service'. There is no reason to believe that this world market would offer any more benefits to communities than existing world markets for rubber, timber,

coffee, cocoa, cotton or rice. Commenting on the carbon market, Jack Cogen from Natsource LLC, a financial services and trading company, which in 2007 was one of the world's largest purchasers of carbon credits for sale on to companies, confirmed this, saying: *"The carbon market doesn't care about sustainable development. All it cares about is the carbon price."* [24]

Outside the carbon market, most 'offset' trading still consists of single transactions. A seller who has polluted or destroyed less than the legal limit allows, or who runs a business creating substitutes for destroyed natural areas, sells to a buyer who needs units of 'environmental service' to nullify pollution or destruction above the legal limit, or to ease their conscience. Only a rudimentary environmental market is needed for the 'environmental service.' The 'offset' units are usually bought directly for final use without further trading. The price is principally established through a negotiation between seller and the final user.

Increasingly, 'offset' PES schemes use trading platforms, 'species banks', or 'habitat banks' that act as market makers and intermediaries between buyers and sellers. Here, the price depends more on the levels of trading taking place on the platform. The original seller or final buyer has less power to set the price. The trading in 'forest restoration credits' created by the 2012 revision of the Brazilian Forest Code, for example, uses the Bolsa Verde do Rio de Janeiro (BVRio). This is a trading platform where interested buyers and sellers can register and offer or buy these credits (called CRA or Cota de Reserva Ambiental). Each CRA represents one hectare of forest of the type that is required under the Forest Code (see below for more detail). The same unit of 'environmental service' may be traded several times before being bought by the landowner or company who needs it to nullify illegal deforestation above the legal limit.

As the price of the units is the principal interest for the buyers and speculators on environmental trading platforms like BVRio, it becomes increasingly important that the certificates for each package of 'ecosystem service' are comparable in quality and quantity. There is also growing demand for proof that the units will be accepted by environmental authorities as either 'equivalent' or sufficiently similar to the pollutant or to the natural area that is destroyed. They have to be similar enough for the environmental agency to accept them as proof that ecological impacts from pollution or destruction above the limits set by the law have been nullified. The 'ecosystem service' has become a tradable commodity on financial exchanges.

In addition to those companies or land owners who need 'offset' certificates to 'nullify' pollution or destruction of nature, speculators, brokers, or specialist financial firms can also trade 'environmental service' units. This has created a secondary market, where those who sold the units originally – communities or landowners with a surplus of the specific 'environmental service'– are no longer involved.

24 Jack Cogen from Natsource LLC, at a side event organised by International Emissions Trading Association and the World Bank during the COP-11 climate summit in Montreal, 5 December 2005.

BOX 4: NORWEGIAN BIODIVERSITY PROTECTION ACT NOT BANKING ON *ECOSYSTEM SERVICES*

Norway's 2009 Nature Diversity Act is a rare example of recent environmental legislation in Europe that goes against the trend towards relying on the concept of 'ecosystem services' for protection of natural areas. A government White Paper justified not including provision of 'ecosystem services' among the objectives of the Nature Diversity Act: *"which ecosystem services [are important] will vary according to the specific quality and type of nature and humans' needs"*; and that it would be *"More clarifying [than to buy and sell ecosystem services] to mention the dependency humans have on nature as it constitutes the basis for activity, culture, health, and wellbeing"*. It added: *"If biological, landscape and geological diversity and ecological processes are maintained, then nature will supply ecosystem services to humans"*.

Source: Arild Vatn et al. (2011): Can markets protect biodiversity? An evaluation of different financial mechanisms. Noragic Report No. 60.

1.3. WHAT EXACTLY IS BEING TRADED ON ECOSYSTEM SERVICE MARKETS?

When banks, brokers or companies trade in grain or oil or cotton on financial markets, they know that a certain volume of a very clearly defined quality of the commodity they are trading exists physically somewhere, be it in a warehouse or a field or an oil tanker. What they actually trade are paper or electronic placeholders of a measurable quantity and quality of the commodity.

In the case of 'environmental services', it is also not the 'service' itself that is traded. Instead, it is a certificate that represents a guarantee that this 'service' exists in a certain place, quantity and quality. This certificate is often referred to as an 'offset credit'. However, is the certificate really a reliable guarantee of the kind needed for the 'environmental service' to be traded as if it were a commodity?

Making a trade is making a promise. The more complex the market, the greater the assurances that buyers require before trusting the original promise on the quality and quantity of the trade. There is no easy way to 'look in the horse's mouth'. Therefore, they need other ways to ensure that they do not buy a certificate that brings them rotten apples when they believed the certificate entitled them to fresh oranges. Without such trust, a commodities market cannot function effectively. This is one reason why globally traded commodities must be divisible into units that are measurable according to commonly accepted standards. The quality of these units must be comparable and easily verifiable, with as little regional or local variation as possible. In the case of 'ecosystem services' it is even more complicated; what underpins the certificate is not merely the 'service' but also a promise (whose reliability must also be assessed according to accepted standards) to maintain the 'service' in a certain condition over a certain period.

Therefore, before an 'environmental service' – or certificates that represent the 'service' – can be traded on a suitable platform, the 'service' needs to be defined in a way that makes comparisons possible. One package of the 'service' from one place must be fungible with another package of the same 'service' from another place. Based on these definitions and measurements, the trader must be able to verify that the two packages represent the same commodity. The trader also must be able to verify and judge the quality and quantity of the 'service', based on the agreed definitions and measurements. This prevents them paying for 10 tonnes of fresh oranges only to receive a certificate that represents 5 tonnes of rotten apples. For commodities like coffee or oil or cotton or corn, it is already challenging to define these as reliably as financial traders would wish. For 'environmental services', trying to achieve this definition, then being able to measure the 'service' in the precise and verifiable ways that commodity markets normally require, has thus far proved impossible. Nevertheless, some 'services', such as carbon dioxide, or CO_2 units, are traded on advanced financial markets. Until now, the main market provider of 'CO_2 offset certificates' has been the Clean Development Mechanism (CDM).

The CDM is part of the Kyoto Protocol, the international climate treaty under the UN climate convention. Industrialised countries with emission reduction targets under this treaty can use CDM 'offset' certificates to claim that they have reduced emissions as promised in the Kyoto Protocol. When demand for such certificates fell because industrialised countries did not commit to large reductions of greenhouse gases after 2012, prices for the certificates collapsed.

In addition, numerous reports show that many certificates – probably the majority of CDM 'offset' certificates being sold – do not represent 'reductions' as defined by the UN. This demonstrates that the market is untrustworthy and therefore risky. The market only exists because it was created by governments that have decided to accept carbon credits as representing a verifiable reduction of one tonne of CO_2 equivalent, even if they have no way to verify that this extra tonne of CO_2 has really been reduced (carbon credits are an 'imaginary commodity', see below). In other words, if the global trade in apples followed the example of the carbon market, certificates for rotten apples, fresh apples and even for apple pulp would be seen as equivalent and fungible, and thus tradable as if they were the same.

Verifying biodiversity 'offset' credits is equally dubious. For example, in a 'bat biodiversity offset', the bat and its habitat are not bought and then moved to where the buyer of the certificate has destroyed bat habitat. What is traded is a placeholder, the 'offset certificate'. The certificate represents a guarantee that the bat habitat offered by the seller is comparable in quantity and quality to the one that the buyer of the certificate will destroy. The buyer has to have the guarantee that when they show the 'biodiversity offset certificate' to the environmental authority, it will accept it as equivalent to the habitat and bats destroyed. When the 'biodiversity offset' credit is traded several times before eventually being used to 'nullify' destruction of biodiversity, all those who bought and sold the credit to make a profit also had to trust that the certificate would be accepted as equivalent. They based their decision on how much to pay for the certificate on the understanding that it would be accepted as valid.

BOX 5: WHY RECENT IMPROVEMENTS IN THE ACCURACY OF *MEASURING* ECOSYSTEM SERVICES HAVE NOT SOLVED THE PROBLEM

The Chicago Board of Trade is one of the leading institutions for the trading of food commodities. Of all the different kinds of corn that exist in the world, it only permits trade in yellow corn. However, it is not simply any yellow corn. It has defined exactly what constitutes yellow corn: *"corn that is yellow-kerneled and contains not more than 5.0 percent of corn of other colors. Yellow kernels of corn with a slight tinge of red are considered Yellow corn."* (a)

The market price for yellow corn that meets that definition is then adjusted depending on its quality ('grade'). There is little difference between the different grades (see report by *The Munden Project* for a table that shows how even a very small change in the quality has an impact on the price, and therefore, how exact the measurements have to be to detect these small differences in quality). This *"reflects the sensitivity – true across almost all financial markets – that traders have to even slight changes in the underlying asset's quality or amount"*, the consultancy firm *The Munden Project* noted in a report analysing whether REDD carbon credits would be feasible for trading on a market fitting the standard requirements for commodity trading. They concluded that: *"Forest carbon trading is unworkable as currently constructed."* Nevertheless, the REDD lobby continues to insist that trading forest carbon credits is possible, will help reduce deforestation and provide benefits for forest-dependent communities – and that extending the idea to biodiversity more generally will also improve conservation of nature more generally.

Source: The Munden Project (2011): REDD and Forest Carbon: Market-Based Critique and Recommendations. http://www.redd-monitor.org/2011/03/22/munden-project-report-on-redd-and-forest-carbon-forest-carbon-trading-is-unworkable-as-currently-constructed/

USDA's United States Standards for Corn. http://www.gipsa.usda.gov/fgis/standards/810corn.pdf

The carbon market has shown that trading can continue as long as the environmental authority accepts the certificate. This is irrespective of whether it is able to verify that the certificate genuinely represents the guarantee that the law or regulation says it does. When that happens, however, it is "nature" that loses out.

From an environmental perspective, the certificate represents a guarantee that the owner of the land that houses the bat and its habitat had (a) the proven prior intention not to maintain the quality of the habitat and will (b) now maintain the land in at least as good a condition as when the credit was sold. The landowner who receives the 'ecosystem service' payment for the bat and its habitat sells the permission to someone else to destroy bats and their habitat. With the sale, the owner accepts the obligation to 'nullify' the damage the buyer will cause to the bat habitat. If the landowner does not maintain the bat habitat for as long as the habitat in the other location remains damaged, both the original habitat and the 'offset' replacement will have been

lost, possibly irreplaceably. This represents one of the gambles that promoters of 'ecosystem service' markets are willing to take. In addition to the increased ecological and social damage resulting from 'offset' PES, the carbon market has already shown that trading such 'imaginary commodities' encourages fraud. Peter Younger, of Interpol, the international police organization, said of trading forest carbon credits: *"You're obtaining not a physical entity or asset but a piece of paper. […]In effect, you could be falsifying ownership in something you can see in order to sell something that you can't. And then inserting that into the carbon markets and selling it to people."*[25]

1.4. OFFSET PROJECTS AND THE CLAIM TO IMPOSSIBLE KNOWLEDGE

'Offset' credits – whether for carbon dioxide emissions, destruction of natural areas or illegally cleared forest – allow the holder of the 'offset certificate' to claim that the effect of his pollution or destruction has been nullified. In order to justify this claim, it is not enough simply to reduce emissions or save some forest. The reduction or protection has to be *in addition* to any reduction or forest protection that was already planned. If the reductions being used as 'offsets' are not additional, or if the forest that is saved was not under threat of being cut down, then the claim by the holder of the 'offset certificate' that their negative impact on the environment has been 'offset' has no basis. Thus calculating how many credits an 'offset' project can sell depends on being able to estimate what would have happened in the absence of a certain condition, and being able to quantify – to a high degree of precision – how that hypothetical condition would have played out.

However, the inconvenient truth, is that is impossible to verify what would have happened in the absence of a certain condition; it is inevitably a matter of speculation. Nevertheless, every 'offset' project needs to present a story of exactly how many tonnes of CO_2 would have been released in the hypothetical future without the 'carbon offset project', or how many hectares of forest would have been lost if a REDD project had not existed. (In that case, the project somehow also needs to convert hectares of forest not cut down into tonnes of CO_2 saved, requiring yet more guesswork). Meanwhile, the agencies approving the 'offset credit' somehow need to be able to verify that this story didn't happen and never will. Even if measurement techniques for actual CO_2 emissions from forests could be developed, they would be powerless to make 'offset' calculations verifiable.

That is why 'offset credits' have been described as an imaginary commodity, generated by the difference between what is, and a story about what might have been. In practice, buyers of 'offset credits' are actually paying for storytelling, not for 'ecosystem services'. As writer and activist Gar Lipow remarked, "*Literary prizes are wonderful, but not when awarded for creative accounting.*"

25 UN's forest protection scheme at risk from organised crime, experts warn. The Guardian. 5 October 2009. http://www.theguardian.com/environment/2009/oct/05/un-forest-protection; https://www.deloitte.com/assets/Dcom-Australia/Local%20Assets/Documents/Services/Forensic/Carbon_credit_fraud.pdf

2. WHO'S WHO: THE MAKERS OF NATURAL CAPITAL MARKETS

The financialization of 'Nature' - the framing of natural areas as Natural Capital, the adjustment of forests, wetlands and so forth to economic valuation methodologies, the monetization and commercialization of 'service' units, does not occur spontaneously. It requires actors with a shared motivation to attend forums and conventions where they can advance ideas and methodologies and promote their putting into practise. It also requires coordinated action to create acceptance of this new method of presenting natural areas.[26] In addition, someone needs to foot the bill for these activities and gatherings. A major part of the work involved in changing how society perceives natural areas is based on public programmes. This includes removing public funding for tried and tested regulatory methods of service delivery and protection of green spaces, as part of the methodological and promotional preparation for economic valuation and subsequent introduction of compensation and payment instruments.

Whilst the state is not listed as a separate actor below, it is worth noting that it plays a key role in this transformation towards market-based service delivery. It is the state that defines these service markets in the first place. This is a demanding task. Not only does the state need to create the initial demand, by setting limits or 'caps', or privatising service delivery that it previously provided itself, it is also partly responsible for supply. It chooses the services to be demarcated and to be delivered. It oversees their development, supervises the functioning of market transactions and ensures that the services are delivered. All of this has a cost. As Corbera et al. note, "*PES are not actual markets where ecosystem services are sold to service buyers. The commodity is ill-defined, and, in most cases, governments play an intermediary role by mobilizing resources from consumers to a government fund, which then distributes financial resources to ecosystem-service stewards at a pre-established price.*"[27]

This chapter looks at some of the main architects, builders and collaborators that work in conjunction with governments, helping to transform the natural world into an ecosystem service provider where Natural Capital can be determined in economic figures. Along the way, such actors change how we perceive forests, meadows and other natural spaces. They also enable the transformation of environmental legislation from regulation with hard limits and fines to regulation based on incentives and 'offsets'. Fines are replaced by compensation payments to private 'offset' providers, and avoiding or reducing damage is undermined. It becomes easier

26 See for example, 'Epistemic Selectivities and the Valorisation of Nature: The Cases of the Nagoya Protocol and the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services (IPBES)'. Brand and Vadrot describe "how problem perceptions and framings and the institutions, concepts and instruments developed to 'solve' these problems become accepted and hegemonic." U. Brand and A. B.M. Vadrot (2013): Epistemic Selectivities and the Valorisation of Nature: The Cases of the Nagoya Protocol and the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services (IPBES). 9/2 Law, Environment and Development Journal www.lead-journal.org/content/13202.pdf

27 Corbera et al. (2007): Equity implications of marketing eco-system services in protected areas and rural communities: Case studies from Meso-America. Global Environmental Change, 17:365-380.

to gain a license to destroy and more difficult for those affected to demand restitution for the damage caused to their well-being.

Ecosystem service markets are characterised by the presence of a variety of intermediaries between sellers and buyers. This is in part because of the effort required to create these markets. Rights must be defined and the 'commodity' must be demarcated. As a result, it is the intermediaries – not the sellers and buyers – that are actually the dominant agents. The intermediaries define the good, arrange 'bazaars' for 'sellers' and 'buyers' to meet, and often even set a predefined price, which generally fails to reflect the elaborate economic valuation exercises carried out by academic actors involved in laying the ideological and methodological groundwork for the markets.

2.1. MULTILATERAL INSTITUTIONS

Not for the first time, the **World Bank** is amongst those at the forefront of a trend that threatens the lives and livelihoods of communities. The World Bank is one of the strongest promoters of the new economy of nature. One likely reason is that such economic valuation initiatives help to 'greenwash' the destruction caused by World Bank-financed mining, infrastructure, logging or hydropower projects. For example, one World Bank loan is promoting the Democratic Republic of Congo (DRC) as a provider of the marketable 'ecosystem service' carbon storage. This would include supplying forest carbon credits under a REDD mechanism or through biodiversity 'offsets'. The demand for this would come in part from DRC's extractive industry and plantation operations, also supported by the World Bank. Similarly, the World Bank's International Finance Corporation, IFC, holds a 5 per cent stake in the Simandou iron ore mining project in Guinea, which is set to become the largest mining project in African history. In spite of the fact that it destroyed the habitat of endangered chimpanzees, the project was able to pass IFC guidelines because it gave promises that the habitat would be protected elsewhere as 'offsets'.

In addition to financing specific programmes and playing a key role in the preparation of the Millennium Ecosystem Assessment, in 2010 the World Bank launched an initiative called 'Wealth Accounting and the Valuation of Ecosystem Services' (WAVES). This was: "*a five-year global programme to implement natural accounting in a critical mass of countries.*" The Bank explained that this was important because: "*Natural capital is a critical asset, especially for less developed countries.*" WAVES is currently financing such 'nature accounting' in Botswana, Colombia, Costa Rica, Guatemala, Indonesia, Madagascar, the Philippines and Rwanda. Countries or organizations contributing financially to the WAVES initiative include Denmark, the European Commission, France, Germany, Japan, the Netherlands, Norway, Switzerland and the United Kingdom. Conservation NGOs are also involved. In Madagascar, for example, Conservation International (CI) is conducting a pilot study on economic valuation for WAVES.

UNEP, the **United Nations Environment Programme** and IUCN, the **International Union for the Conservation of Nature**, have worked hand in hand for years to help pave the way for a new economy of nature. UNEP hosts the TEEB initiative at its Geneva office, UNEP's Finance Initiative[28]

28 http://www.unepfi.org/

provides, among others, the secretariat for the 'Natural Capital Declaration' of private banks (see below). The September 2010 issue of the UNEP magazine '*Our Planet*' was entitled "*Natural Capital. The Economics of Ecosystems and Biodiversity.*" Both UNEP and IUCN have been strong proponents of using financial markets to fund forest protection through REDD.

2.2. MULTINATIONAL CORPORATIONS

The **World Business Council for Sustainable Development** (WBCSD) is a major lobby group at the United Nations, representing big business interests including Syngenta, Rio Tinto and Holcim. It has been a particularly enthusiastic advocate of PES. Some 29 WBCSD member companies have developed "*a vision of a world well on the way to sustainability by 2050.*" The introduction to the Vision 2050 document talks about the changes that businesses need to make to get "*on the way to sustainability*", stating that "*these changes are necessary, feasible and offer tremendous business opportunities for companies that turn sustainability into strategy.*" The WBCSD "Guide to Corporate Ecosystem Valuation" suggests methodologies that will help businesses profit from "*the specific opportunities that [ecosystem services] present in business terms.*"

The company 'Business for Social Responsibility' (BSR) describes itself as working with a "*network of more than 250 of the world's most influential companies.*" In March 2013, BSR published a report called "*Private Sector Uptake of Ecosystem Services Concepts and Frameworks.*" This report lists the activities of 35 corporations engaged in 'PES offset' and nature valuation initiatives. It also shows how closely these corporations are working with conservation NGOs. IUCN is listed as a partner in PES initiatives for AkzoNobel, Eni, Holcim, Rio Tinto and Shell. Meanwhile, the Nature Conservancy is listed as a partner for Dow Chemical, Shell and the Walt Disney Company. BHP Billiton mentions Conservation International as a partner in their 'PES offset' programmes. Other conservation NGOs mentioned include WWF, Flora and Fauna International (partnered with Anglo American and British American Tobacco) and the World Resources Institute (WRI).

Examples of other transnational corporations using 'PES offsets' include Olam, the food corporation that has already generated conflict with communities over expansion of oil palm plantations in Gabon. In Vietnam, Olam has a CDM project; meanwhile in Gabon, Olam is involved in a carbon 'offset' project, involving restoring cacao plantations in an area of little interest to commercial timber operations or oil palm developers. Next door, oil palm company Atama is clearing forest to establish the largest oil palm plantation in the Congo Basin. Olam is also involved in "*a new Public Private Partnership with the Government of the Republic of Congo that aims to create a viable commercial framework to generate carbon credits from standing forests.*"

Rio Tinto, along with Arcelor Mittal, Lafarge, Eni, Eskom and others, is listed as one of the 'road testers'[29] of the WBCSD *Guide to Corporate Ecosystem Valuation*. In its report on the company's PES project in Mongolia, the company states that: "*the growing focus on exploration in developing countries means that the potential for land-use conflict will become an increasingly significant*

29 http://www.wbcsd.org/work-program/ecosystems/cev/roadtesters.aspx , including links to PES and valuation of Nature activities involving Syngenta, Lafarge, Holcim, Weyerhaeuser, Eni, Eskom among others.

issue for Rio Tinto. … The Biodiversity Strategy was adopted in 2004 to manage the threats and opportunities presented by biodiversity and ecosystem service issues. Input of biodiversity stakeholders, such as Flora and Fauna International, Birdlife International, IUCN, The Biodiversity Consultancy and Hardner & Gullison – help Rio Tinto operations identify, plan for and manage biodiversity programs based on the needs of that business. … Biodiversity offsets will help Rio Tinto achieve the goal of net positive impact, while meeting legal requirements and maximizing conservation gains." The company reveals a further motivation for its involvement in the project: *"Oyu Tolgoi – Mongolia: This developing project is required to meet specific biodiversity offset and no-net-loss requirements under the International Finance Corporation's Performance Standard 6 on biodiversity."*

A report from Colombia highlights that in addition to legitimizing takeovers of land for mining and infrastructure, such 'offset' schemes also require large areas of land in their own right. The threats are obvious. The Colombian organisation Fundepublico writes that companies: "*cannot find the land to establish the offsets*," and that: "*in the cases where offsets have been established, environmental agencies do not know the exact location of offset sites.*" Fundepublico adds that: "*the puzzle of matching offset demand with offset supply has yet to be solved. And it's a complicated one. With over 8 million hectares under mining titles, over 130 oil and gas companies, with operations in the country over at least 1.5 million hectares, including Shell, Oxy, Chevron, ExxonMobil, and Petrobras, and thousands of kilometers of highways in the pipeline that will affect critical biodiversity hotspots, one of the key questions is where are the hundreds of thousands of hectares needed in offsets are going to come from.*"

If mining and real estate companies have an interest in 'biodiversity offsets', then so do airlines, car manufacturers and entertainment companies in 'carbon offsets'. Conservation NGOs like Conservation International, The Nature Conservancy and WWF play an important role as intermediaries, project managers or brokers of contracts for these PES trades.[30]

2.3. FINANCIAL INDUSTRY

Private banks stole the limelight from governments at the 2012 Rio+20 summit with their launch of the *'Natural Capital Declaration'*. Subtitled: "*Financial sector leadership on natural capital. A commitment by financial institutions to mainstream natural capital in financial products and in accounting, disclosure and reporting frameworks*", the Declaration was signed by more than 40 CEOs from banks, investors and insurers worldwide.[31] The Declaration describes nature under the heading "*The Importance of Natural Capital*": "*Natural capital comprises Earth's natural assets (soil, air, water, flora and fauna), and the ecosystem services resulting from them, which make human life possible. Ecosystem goods and services from natural capital underpin productivity and the global economy. They provide services worth trillions of US dollars per year in equivalent terms and constitute food, fibre, water, health, energy, climate security and other essential services for everyone. Neither these services, nor the stock of natural capital that provides them,*

30 See list of case study reports at the end of this publication.

31 The Natural Capital Declaration. http://www.unepfi.org/fileadmin/documents/ncd_booklet.pdf

are adequately valued in terms comparable to manufactured and financial capital. Despite being fundamental to our wellbeing, their daily use remains almost undetected within our economic system. Using natural capital this way is not sustainable." According to such statements, there is a need to create a nature that capital can see. The financial industry's need for new assets explains, in part, the financial and investment sector interest in PES. In 2010, David Bianco, senior banker at Bank of America, commented that: "*Cash is piling up faster than companies can figure out what to do with it.*" Capital needs new assets for investment. Turning forests and other natural areas into 'ecosystem services' is how economists hope to create a new type of asset. "*When our analysts were looking for the next area of great growth it was fairly obviously that it was the planet, it was the environment,*" financial services company Tullett Brown commented in 2012. They continued: "*The preservation of the planet allows us to give our clients what they truly seek, which is sustainable returns for many years to come.*" Three weeks after being awarded the title of 'Commodities Broker of the Year in Western Europe' by World Finance, the company was placed into provisional liquidation.[32] Economist Willem Buiter of Citigroup, a transnational financial services group based in the U.S., sees a future commodities market in water: "*I expect to see a globally integrated market for fresh water within 25 to 30 years. Once the spot markets for water are integrated, futures markets and other derivative water-based financial instruments […] will follow. There will be different grades and types of fresh water, just the way we have light sweet and heavy sour crude oil today. Water as an asset class will, in my view, become eventually the single most important physical-commodity based asset class, dwarfing oil, copper, agricultural commodities and precious metals.*"

2.4. CONSERVATION NGOs

The major conservation groups Conservation International (CI), The Nature Conservancy (TNC), World Wide Fund for Nature, (WWF), the Wildlife Conservation Society (WCS) and Flora and Fauna International (FFI) are involved in numerous forest carbon and 'biodiversity offset' projects, as well as initiatives promoting 'offsetting' as a lucrative and business-friendly form of PES. Organisations like the Environmental Defense Fund, whilst not involved in managing offset projects directly, play a key role in advancing the concept through lobbying and promoting the concept at UN and business fora. TNC, CI, WCS and certification organisation Rainforest Alliance have joined forces to set up a certification scheme for 'forest carbon offsets', called the Climate, Community & Biodiversity Standard (CCBS). Between 2004 and 2008, CI and WCS provided the Secretariat for the 'Business and Biodiversity Offsets Programme', which is advancing biodiversity banks and 'offset' schemes. Through the Natural Capital Project (not to be confused with the Natural Capital Declaration of the finance industry), WWF, TNC, Stanford University and the University of Minnesota have: "*developed practical, science-based approaches and software tools that quantify, map, and value services provided by nature. Accounting for ecosystem services reveals the diverse benefits provided by nature, clarifies tradeoffs between alternative development scenarios, and helps people make*

32 Leading carbon credit broker faces winding-up order. 10 April 2012 http://www.greenwisebusiness.co.uk/news/leading-carbon-credit-broker-faces-windingup-order-3217.aspx

more informed decisions about how to use lands and waters."[33] The Natural Capital Project NGO partners have unfortunately failed to explain how these approaches and software tools will help those people whose informed decisions about how to use lands and water are routinely ignored and often violently suppressed by some of the companies involved.

As part of the World Bank's WAVES initiative, CI is currently conducting a pilot study in Madagascar to quantify 'ecosystem services'. "*That's where a new conservation policy tool called Payments for Ecosystem Services (PES) comes in, encouraging local communities to stop environmentally harmful practices in exchange for monetary or in-kind benefits*," CI writes on its blog. While CI encourages local communities to stop environmentally harmful practises, at the same time it helps mining corporations such as BHP Billiton 'greenwash' other environmentally harmful practises that are undermining the local communities' livelihoods.In future, those livelihoods will be threatened not only through mining operations but also through 'biodiversity offset projects' closing off community access or restricting community use of the remaining territory not yet devastated by mining.

In 2011, Michael Grubb, former Chief Economist at the UK-based Carbon Trust, commented on NGO complaints that one of the Kyoto Protocol's carbon trading instruments, the Clean Development Mechanism, was failing to contribute to 'Sustainable Development' in the way promised in its founding document. He said: "*Having created a market-based mechanism to cut carbon, a lot of people seem to expect it to behave in a non-market way and deliver poverty alleviation, deliver sustainable development co-benefits. But fundamentally, you create a market, it's behaving the way markets do, it chases where are the most cost effective things, where can they make the most profits and I think that anyone who didn't expect a market instrument to behave in that way didn't understand what they were doing.*"[34] It seems that the hopes and promises that conservation NGOs invested in the new economy of nature will be dashed, in the same way that promises that the CDM would deliver Sustainable Development went unfulfilled.

2.5. SPECIALIST INVESTMENT FUNDS AND MARKET MAKERS

In recent years, a number of specialist firms have emerged to capitalize on the expected new market in 'ecosystem services'. Organisations such as Ecosystem Marketplace and Canopy Capital provide visibility for markets. At the same time, carbon credit sellers like the Carbon Neutral Company, Climate Care and the Bolsa Verde do Rio de Janeiro facilitate the sale of 'offset credits' from forest and biodiversity or forest restoration 'offset projects'. Specialist investment funds like Althelia, Terra Global or the Forest Carbon Group help pool private capital, which is then made available to biodiversity and forest carbon 'offset' companies like Wildlife Works and Ecosystem Restoration Associates.

Another important market-maker is the Business and Biodiversity Offsets Programme (BBOP) of the market-oriented Forest Trends group. The programme is led by an international collaboration

33 http://www.naturalcapitalproject.org/about.html#mission , emphasis added.

34 Carbon Markets. Trading with our future. www.cop17carbonmarkets.com/2011/12/07/carbon-markets-trading-our-future/

of representatives from companies, financial institutions, governments and NGOs. BBOP has been instrumental in developing principles and standards for 'biodiversity offsets'. NGOs on the BBOP Advisory Group include FFI, CI, TNC, Birdlife International, the World Conservation Society, the Rainforest Alliance and WWF-UK. Among its pilot 'biodiversity offset' PES scheme beneficiaries, BBOP mentions the large-scale Ambatovy nickel and cobalt mine in Madagascar, the (now closed) Solid Energy coal mine in New Zealand (with a project in areas destroyed by past mining), a proposed Newmont gold mine in Ghana and an Anglo-American platinum mine in South Africa. Solid Energy cites their interest in maintaining their public image as one of their reasons for engaging in the 'biodiversity offset project': "*The operations of the minerals industry in New Zealand (and indeed, internationally) have increasingly come under public scrutiny. It is important to recognise that offsetting represents an opportunity for Solid Energy to build and enhance its social license to operate.*" Newmont, meanwhile, sees its: "*commitment to a biodiversity offset for the Akyem Project"* as a way of fulfilling the terms of the project's Environmental Impact Assessment, thus assisting the company to obtain a mining license.

2.6. UNIVERSITIES AND CONSULTANCIES

Universities, research institutes and consultancies play a crucial role in the process of turning natural areas into comparable, and therefore tradable, 'ecosystem service' units. Many of them insist that what they are doing is: '*Just making the economic value of nature visible'*. Some also insist that: '*This is not the same as putting a price tag on bumblebees or ecosystems*'. However, their scientific work – preparing methodologies, giving academic credence to questionable calculations, pretending that it is possible to 'internalise' external costs in order to come up with a 'true cost' of nature destruction – all helps prepare the ground for ecosystem trading (see chapter 4). Those claiming that what they do is different from putting a price on nature can easily be found contradicting themselves, even in their own statements. The following example comes from the webpage of the UK-based 'Valuing Nature Network', a coalition of universities, research institutes, companies and conservation NGOs. In the 'How to' section of the Network website, it reveals that in spite of all the fuzzy words about valuation being different from putting a price on nature, the objective is nevertheless financial. *"The environmental effects of alternative investments are measured in many different units, such as litres of water polluted/cleaned; tons of greenhouse gas emitted or number of visits made to the countryside." It continues: "All of these things affect human wellbeing, but, because they are measured in different units, it's hard to compare them to know where best to invest to protect the environment. Economic valuation attempts to assess the value of environmental changes in the same units that other goods are assessed in: money."*[35]

The reality is that: "*where best to invest to protect*" will inevitably also mean 'where it is not best to invest to protect', is where corporations can continue to destroy. By developing the methodologies and calculations that allow industry and capital to identify these places, the universities, research institutes and consultancies play an important role in the process of financialization of natural areas.

35 http://www.valuing-nature.net/about

3. TRACKING FAILURES IN COSTING NATURE

"Nature" cannot be reduced to neatly packaged, measurable, comparable and interchangeable units of 'ecosystem services'. Presenting them as clearly delineated units, behaving as commodities produced by humans, is a fiction. Karl Polanyi described the way in which land was incorporated into markets as a tradable commodity as a process of creating a fictitious commodity.[36] This transformation from commons into land as a commodity was a hotly contested, often violent process. The consequences are still with us today, when the few who claim ownership over immense areas of land are at odds with the millions left landless. The process also encountered a series of technical contradictions, which had to be explained away in order to create a tradable commodity. The transformation from, for example forests, to 'ecosystem services' also requires covering up many other contradictions and inconsistencies.

Firstly, there is the task of compartmentalizing discrete 'ecosystem service' units, even although these units are inextricably linked. Overlapping, interactive and diffuse border areas must be presented as having discrete and well-defined boundaries.[37] Describing "nature" that is still poorly understood by Western science in economic terms requires that distinct places, with their site-specific, complex, interacting functions and processes, are fitted into a mechanistic analytical framework designed to deal with the relatively simple nature of man-made commodities. "Paper doesn't blush," the saying goes. However, when the theory of abstract concepts meets the reality of implementation, the cracks begin to show. Some of the empirical case studies mentioned below illustrate the obstacles encountered in implementing wetland banking systems in the USA. The flagship market-based instrument for nature conservation, the EU and the Kyoto Protocol carbon trading schemes, have allowed burning the dirtiest fossil fuels to become so cheap that brand new gas-powered plants have been mothballed before they were even fired up. The schemes have witnessed en masse fraud and 'offset' contract breaches. In the case of the EU carbon trading scheme, it has been used by the fossil fuel industry to argue for dropping binding targets for renewable energy and energy efficiency. The grounds were that these '*interfere with the functioning of the carbon market*,' a market that has so far only functioned to divert attention away from the need to keep oil in the soil, coal in the hole and tar sands in the land.

BIODIVERSITY OFFSET PES ADVANCING DESPITE TRACK RECORD OF FAILURE

"*Learning by Doing*" is the World Bank's motto for many of its activities. Critics have often noted that whilst the 'doing' just continues, the 'learning' never seems to happen. When examining the track record of 'biodiversity offsetting initiatives', one could be forgiven for concluding that advocating more biodiversity banks and 'offset schemes' is akin to advocating more doing without learning. Nature 'offsetting programmes' have existed for decades in Australia, the US and Canada. Predictably, their track record is predominantly one of failure. In Canada, for instance, in projects meant to 'offset' the loss of fish habitat, researchers found that 63 per cent of

36 Karl Polanyi (1944/1957): The Great Transformation: The Political and Economic Origins of Our Time. Boston, MA: Beacon Press.

37 Nicholas Georgescu-Roegen described this as framing an artimomorphic concept as a dialectical concept.

projects failed to achieve the stated target of 'no net loss'.[38] One of the many reports documenting the failures – merely on ecological grounds – of 'PES offsetting' in the USA includes one from 2001 from the National Research Council. This contains an entire annex of other reports, from 1983 to 2000, demonstrating that wetland compensation sites have regularly failed.[39] In addition, a 2005 report from the USA Government Accountability Office is entitled: "*Wetlands Protection: Corps of Engineers Does Not Have an Effective Oversight Approach to Ensure that Compensatory Mitigation is Occurring."*[40] The FERN briefing, *Critical Review of Biodiversity Offset Track Record*[41] includes additional references to studies on the failure of 'biodiversity offset programmes' even within their own narrowly-defined terms.

3.1. BIODIVERSITY OFFSETS IN THE UK

In Europe, the UK government strongly promotes 'offset PES schemes.' The Environment Secretary, Owen Paterson, in 2013 explained the government interest in 'offset PES.' 'Offsetting', he says, "*gets round the long-running conundrum of how to grow the economy at the same time as improving the environment. […] I believe that, with a bit of innovative thinking, in many cases it is possible to have both. This is why I am particularly interested in biodiversity offsetting.*"[42] The UK government's interest in 'innovative thinking' is probably also influenced by the fact that *"there's over £300bn [of infrastructure projects] in the pipeline according to Infrastructure UK and much of that will be sizeable projects needing EIA."* Many of these are likely to face strong local opposition.

Paterson himself has explained how 'biodiversity offsets' can aid in the construction of a controversial development slated to destroy a 400-year-old woodland: "*I think it was 10,000 mature trees [lost] and they planted a million young ones."*[43] In some cases, demands from local community groups to halt construction of luxury housing schemes that will destroy ecologically important 'sites of special interest' have already been rejected on the grounds that the construction companies involved used biodiversity 'offsets' to 'compensate' for environmental impacts.[44]

Another prominent example of proposed 'biodiversity offset' use in the UK is the expansion of the highly controversial Hinkley Point nuclear power plant. This uses uranium mined in Namibia. The French corporation Areva is the plant's uranium supplier, which is turn run by the French

38 J.T. Quigley & D.J. Harper: (2006): Effectiveness of fish habitat compensation in Canada in achieving no net loss. Environ Manage. 2006 March: 37(3):351-66.

39 http://www.nap.edu/catalog.php?record_id=10134

40 http://www.gao.gov/products/GAO-05-898

41 http://www.fern.org/sites/fern.org/files/Critical%20review%20of%20biodiversity%20offsets.pdf

42 Environment secretary criticised over National Park schemes after speech in North Yorkshire www.thenorthernecho.co.uk/news/10697397.Environment_secretary_criticised_over_National_Park_schemes_after_speech_in_North_Yorkshire/?ref=nt

43 http://www.thetimes.co.uk/tto/environment/article3965473.ece, January 4, 2014

44 http://www.northtyneside.gov.uk/pls/portal/NTC_PSCM.PSCM_Web.download?p_ID=534271

energy corporation EDF. Areva has been a key beneficiary of the uranium 'rush' in Namibia. Uranium mining in Namibia tends to be opencast, resulting in large areas of land being dug up. Around the mine, industries linked to uranium processing are being established. These include a desalination plant to supply the immense quantities of water required, and a plant to provide the necessary chemicals to extract the uranium. In 2009, the German government funded a Strategic Environmental (Impact) Assessment (SEA) with the intention of developing: "*a living example of how mining can contribute to the achievement of sustainable development*" in the 'Namib Uranium Province'. While the Impact Assessment mentions that: "*under any of the mining scenarios envisaged, … [economic] benefits will be at the cost of the biophysical environment, which will be a net 'loser,'*" the SEA describes 'biodiversity offsetting' as enabling Namibia to "*position itself to capitalise on a 'green' brand of uranium.*"[45] The 'biodiversity offsets' are claimed to be able to nullify environmental harm both at the point of extraction of uranium – where one mine is scheduled to expand into a National Park that is home to important archaeological sites – and at the point of 'consumption' of uranium in the UK.[46]

3.2. BIODIVERSITY OFFSETS IN FRANCE

In the Camargue region of France, '*Biodiversity compensation is a new alibi for the concrete promoters*', explains Friends of the Earth France. The Caisse des Depots (CDC) bank is a major financial player in France. It has purchased thousands of hectares of land in the Coussoul, bordering the Camargue region in southern France, which has already been impacted by previous intensive use. The Camargue is home to endangered species such the Little Bustard and the Bupreste de Crau (a type of blister beetle). A CDC restoration project on the land they purchased seeks company finance for the restoration in exchange for a compensation certificate that companies can use to 'greenwash' environmental damage of their projects elsewhere. Rather than tackling the damage caused by urbanisation and the loss of biodiversity, this compensation: *"enables the reduction, in particular, of delays in getting projects accepted by local communities"*, the French Minister of the Environment acknowledged.

One company has already bought the biodiversity credits in question in advance, as a way of promising to compensate for the environmental impacts of a project opposed by local groups. CDC has meanwhile proposed that the Alienor construction firm should use 'offsets' to compensate for the damage that will be caused by a controversial new motorway in the southwest of France, the Pau-Langon project (A 65). The proposed compensation is the purchase or improved management of 1,372 ha of land elsewhere.[47]

45 Ministry of Mines and Energy (MME), South African Institute for Environmental Assessment, and the German Federal Ministry for Economic Cooperation and Development: Strategic Environmental Impact Assessment (SEA) for the Central Namib Uranium Rush. Windhoek. MME 2010-11.

46 Sian Sullivan (2013): After the Green Rush? Biodiversity Offsets, Uranium Power and the 'Calculus of Casualties' in Greening Growth. In: Human Geography, Vol. 6 No.1, 2013.

47 More information at www.nacicca.org

3.3. CARBON OFFSETS FROM MADAGASCAR FOR AIR FRANCE

To combat climate change, Air France finances the "Holistic Conservation Programme for Forests in Madagascar" (HCPF), a project aimed at fighting deforestation in Madagascar. In theory, this project should contribute toward preserving biodiversity, stockpiling carbon and ensuring "*sustainable human development*". However, villagers living nearby are discovering that the project is restricting their access to land.

Originally presented as an "*environmental solidarity programme,*" the HCPF, conducted in Madagascar by GoodPlanet and WWF Madagascar, is intended to: "*advance scientific knowledge of forest carbon.*" In 2010, Air France issued an unequivocal statement that the project was not a 'carbon offset' programme. Two and a half years later, however, it admitted that the programme would indeed generate carbon credits, although it insists that any profits will go to local communities. A report and video made by Friends of the Earth France[48] demonstrates that not even this last claim is true. The HCPF takes forest areas away from the local population, risking displacing people who see their means of subsistence jeopardized. People whose subsistence is dependent on access to these forests, and whose way of life has contributed next to nothing to the climate crisis, are forced to change their way of life to allow a small minority of frequent flyers to continue to pollute the planet.

Forests and land can no longer provide a local livelihood. Instead, they have become stocks of carbon that must be protected for an airline that wants to offer 'carbon neutral' flights to its frequent flyer clients. In order to monitor what has been declared prohibited land use within the project area, a forest police unit has been set up. Their mission is to track down villagers who clear patches of forest so they can grow food to feed themselves. Anyone they catch risks a heavy fine. If the individual is unable to pay, they are sent to prison. If patrols on the ground were not enough, surveillance aeroplanes also fly over the villages.

3.4. CARBON MARKET FOR PEATLAND RESTORATION IN GERMANY

Degraded peatland emits greenhouse gases, and rewetting the peatlands reduces these emissions. Most peatland in Germany's federal states of Mecklenburg-Vorpommern and Brandenburg are degraded, as demand for agricultural production from these areas collapsed after reunification. However, funding for restoration of degraded peatlands remained scarce, particularly after biomass energy policies led to land prices increasing again, as interest in these areas grew for producing biomass energy crops.[49] In 2011, the government of Mecklenburg-Vorpommern – where emissions from degraded peatland top those from most other sectors[50]

48 French: http://www.amisdelaterre.org/REDD-a-Madagascar-le-carbone-qui.html, English: http://www.amisdelaterre.org/REDD-in-Madagascar-You-can-t-see.htm

49 http://iucn-uk-peatlandprogramme.org/sites/all/files/12.06.27.5%20MoorFutures2.0_ABerghefer_0.pdf , slide 4.

50 Investments für Klima- und Naturschutz. Brochure published by the Ministerium für Landwirtschaft, Umwelt und Verbraucherschutz Mecklenburg-Vorpommern. P. 6 http://www.moorfutures.de/sites/default/files/mf_broschuere_20.10.2010.pdf

– presented a new funding instrument to restore the degraded peatland. 'MoorFutures' are certificates that represent reduced emissions from rewetting peatland. One 'MoorFuture' is marketed as equivalent to one tonne of CO_2. This regional variation of a 'carbon offset' credit is being offered for sale to individuals and corporations. IUCN features the example on the "Inspiring Solutions" page of its website.[51] Elaborate scientific monitoring accompanies project implementation[52], and conflicts over access to land and negative social impacts comparable to those around other areas generating 'carbon offset credits' in the global South are unlikely in the project area. The initiative developed its own methodology to calculate the supposed greenhouse gas savings from the project: "*Given the environmental conditions in Mecklenburg-Vorpommern, a one-to-one implementation of the [Verified Carbon Standard's Peatland Rewetting and Conservation] methodology would however result in exorbitant costs.*"[53]

So, what is wrong with an initiative that uses an 'innovative funding instrument' to pay for restoration of degraded peatland, thus providing new habitat for threatened and rare species and replenishes degraded carbon stocks? To begin with, the programme is based on the same unverifiable claim that the purchase of x number of certificates nullifies climate impacts from the release of x tonnes of CO_2 emission. As previously discussed in chapter 1.4, all 'offset projects' claim to know exactly what emissions would have been released from their site in future had the 'offset project' had not taken place. In other words, they pretend to not only be able to look into the future but be able to do so with such precision that they can tell us exactly how many tonnes of greenhouse gases would have been emitted through the hypothetical activities on their project area. Giving "guarantees" about the veracity of such projection is akin to charlatanry. Yet, on the basis of such unverifiable calculations, 'MoorFutures' offers: "*certificates that enable your company to improve its greenhouse gas emission balance. One MoorFutures corresponds to one ton of CO_2 per year that you can offset against your current emissions. By acquiring MoorFutures, your company or organisation can reduce its climate balance in a most flexible way: You can for example offset the emissions caused by business travel, specific production processes or your overall greenhouse gas emissions. MoorFutures thus become part of your organisation's CO_2 balance sheet.*"[54]

As with all 'offset' schemes, the MoorFutures business model works contrary to the changes required by our industrial production system. Offering corporations like McDonald's Deutschland Inc. – a client of MoorFutures - whose operations are dependent on industrial-scale agricultural production of meat, with associated devastating environmental and climate impacts, provides the possibility to 'greenwash' their massive contribution to climate change. This strengthens the corporate lobby against necessary change. Explaining its car policy introduced in 2012, McDonald's Deutschland Inc. states: "*In our internal guidelines, we set out clear limits as*

51 www.iucn.org/about/work/programmes/gpap_home/pas_gpap/gpap_inpsiringsolutions/?14399/MoorFutures--how-regional-carbon-credits-from-peatland-rewetting-can-help-nature-conservation-in-protected-areas

52 http://www.efmk.de/userfiles/downloads/Vortraege/14_Tanneberger_EFMK_21_02_2014.pdf

53 MoorFutures website, Transparency http://www.moorfutures.de/en/moorfutures/transparency

54 MoorFutures website, What are MoorFutures? http://www.moorfutures.de/en/moorfutures/what-are-moorfutures

regards the use of company cars in order to promote the use of low-emission vehicles so that the CO_2emissions from our fleet are kept as low as possible. If a driver exceeds the set CO_2 limit, he or she must pay a "fine, which is used to purchase MoorFutures."[55] Thus, the corporate greenwash is not paid for by the company but rather by its employees. Whether overall corporate policies and practises are such that employees have the conditions to adhere to the car policy, the MoorFutures website does not say.

To further illustrate the incoherence between concept and practise, it is worth noting that the price of a 'MoorFuture' – on average EUR 35 – is primarily determined by the cost accruing from rewetting the peatland. Elaborate calculations pertaining to the economic valuation of the various 'ecosystem services' of peatlands do not appear to be the reference for setting the price.

3.5. BEE POLLINATION PAYMENTS TO PROTECT NATIVE FOREST IN COSTA RICA

… however, what happens when a coffee plantation is converted to a pineapple plantation?

Another example that reveals the weakness of the claim that forests can be protected through 'ecosystem service' payments is that of the former coffee plantation, Finca Santa Fe in Costa Rica. A study had found that native bees, from two forest fragments adjacent to Finca Santa Fe, saved the coffee plantation owner approximately US$60,000 a year. Without them, he would need to rent hives of bees to pollinate his crop. An 'ecosystem service payment' contract was drawn up between the plantation owner and the owner of the forest. This case was presented as an example of how ‚ecosystem service payments' can provide a win-win scenario for forest protection and agriculture.

However, not long after the conclusion of the study, prices for coffee nosedived on global commodity markets. The coffee shrubs at Finca Santa Fe were cleared and replaced with a pineapple plantation. However, pineapple plants do not require bees for pollination. On the contrary, pollination is actually harmful to their productivity, since the presence of seeds negatively affects the quality of the fruit. Indeed, in Hawaii, where pineapple is cultivated on a large scale, the importation of hummingbirds – which also pollinate pineapples – is prohibited for this reason.[56]

55 http://www.moorfutures.de/en/investors/mcdonalds-deutschland-inc

56 D. McCauley (2006): Selling out on nature. NATURE. Vol 443, 19 October 2006. Pg. 27-28. http://www.agroecology.wisc.edu/courses/agroecology-702/materials/6-ecosystem-services/Tuesday/McCauley2006andLetters.pdf and article about the project as success story two years earlier, also in Nature: http://www.nature.com/news/2004/040802/full/news040802-4.html

In this case, the theories behind the valuation methods used to make the economic case for forest conservation would likely lead to the following conclusions:

(1) Over a period of several years, the monetary value of the pollinators in forest fragments around Finca Santa Fe dropped from US$60,000 per year to zero.

(2) Keeping the forest fragment standing – if it was home not only to bees but also hummingbirds and bats (which is likely) comes at an economic cost to the operator of the pineapple plantation, because the pollinators may affect fruit quality.

In the logic of the new economy of nature, the operator of the pineapple plantation would be better off cutting down the forest fragment. This provides evidence of the risks of the view that by making nature 'visible' to business, it will be preserved.

4. DEBUNKING THE MYTHS

4.1. THE ONLY WAY TO SAVE NATURE IS TO SHOW ITS ECONOMIC VALUE

"*The economic invisibility of nature must end,*"[57] Pavan Sukhdev, author of the TEEB study, writes on his blog. Many economists, corporations, UN agencies and conservation NGOs echo his statement. This view asserts that, as the ecological benefits that "nature" provides have not been translated into economic or financial terms, then "nature" will continue to be sacrificed to realise the visible economic gain that can be made from its destruction. These ecological benefits include water regulation and filtration in forests and soils carbon cycling and storage in soils and vegetation, biodiversity and pollination of crops by bees. The World Business Council for Sustainable Development, an influential industry lobby group at the UN, writes in its *Guide to Corporate Ecosystem Valuation: "If only we had the tools to measure these values and integrate them into business decision-making."*[58] The argument is that once capital markets, politicians and corporations can see the enormous economic value of these 'ecosystem services', it will become easier to demand that "nature" be protected. Following this logic to its natural conclusion, a "nature" that capital can see is all that is required to end environmental destruction. Some also propose to use this economic valuation to finance the conservation of natural areas – through PES. Economists have developed initial estimates of the economic worth of 'ecosystem services', research and development aid grants are distributed to prepare for marketing these 'environmental' or 'ecosystem' services.

In this context, the comment from the TEEB initiative, that: "*By failing to account for the value of ecosystems and biodiversity, we will make the wrong choices*"[59], is revealing in two ways. Firstly, the use of 'we' portrays a remarkable lack of reflection on the crucial question of who does – and does not – make the choices involved. If the 'we' referred to the people living in these areas, having shaped the composition, structure and appearance of the natural areas that they are part of, then they would have taken far fewer wrong choices that caused large-scale destruction. As their livelihood depends on keeping the ecological functions and processes of the territory intact, they have found ways of valuing the land they depend on that do not require – indeed are often at odds with – the economic techniques of pricing 'ecosystem services'.

Secondly, it is not the lack of ways for "*account[ing] for the value of ecosystems and biodiversity"* that causes people to lose their territories. Instead, it is because their own ways of assessing and defending the value – economic, cultural, spiritual or inherent – of the territory they call home are routinely shoved aside, ignored or suppressed when outside interests make decisions on

57 http://pavansukhdev.com/

58 WBCSD Guide to Corporate Ecosystem Valuation. Page 12, EN version. http://www.wbcsd.org/pages/edocument/edocumentdetails.aspx?id=104&nosearchcontextkey=true

59 The Economics of Ecosystems and Biodiversity for national and international policy makers. Summary: responding to the value of nature, p.3 – http://www.teebweb.org/ForPolicymakers/tabid/1019/Default.aspx

land use. Countless conflicts over the use of land between communities and corporations – often aided by state forces – are testament to this fact.

Those facing such conflicts know from direct experience that imagining a price for their territory – or even only a price for the biodiversity it contains – does not shift this relationship of power to their advantage. The example of economic valuation of mangrove forests, cited in the 'TEEB for Water and Wetlands' report, is a case in point.

"*Wise use of wetlands, including the conservation and restoration of hydrological functions, is essential in maintaining an infrastructure that can help meet a wide range of policy objectives. In many cases, natural ecosystems can provide ecosystem services at a lower price than hard engineered approaches. For example, the benefits of mangroves in Southern Thailand were estimated at about US$10,821/ha for coastal protection against storms, US$987/ha for fish nurseries and US$584/ha, in net present value terms for collected wood and non-timber forest products […]. In contrast, the benefits of commercial shrimp farming were estimated at US$ 9,632/ha with government subsidies contributing the equivalent of US$8,412/ha […]. Hence shrimp production without subsidies over the period creates benefits of only US$1,120/ha which is dwarfed by the monetary value of the ecosystem services provided by mangrove conservation (see also Hanley and Barbier 2009). While the benefits of mangroves are provided continuously, shrimp production declines after five years and shrimp farms are abandoned when turning unproductive. The costs of restoring mangroves are US$9,318/ha beyond the private profits from shrimp and have to be borne by the public."*[60]

Here, economic valuation is described as a tool to change a political decision. It allows a private shrimp company to pocket substantial profits from the destruction of mangrove forests. If the forests were left intact, they would provide enormous (economic) value to society, and in particular, to people dependent on mangroves for their livelihood. By contrast, a perspective that is mindful of real power politics will analyse the same situation – shrimp farms destroying valuable mangrove forest – very differently: "*Even if we didn't have a number to slap on them, we've known for centuries that mangrove swamps are of great value for coastal protection and as breeding grounds for fish. But this has not stopped people from bullying and bribing politicians to let them turn these forests into shrimp farms. If a hectare of shrimp farms makes $1,200 for a rich and well-connected man, that can count for far more than the $12,000 it's worth to downtrodden coastal people. Knowing the price does not change this relationship: again, it's about power.*"[61]

From this perspective, the market would not solve the problem of power, but merely give it a new name: 'economic valuation'. The proponents of economic valuation of mangrove forests have yet to spell out how an economically visible mangrove forest – with or without a price tag – could in any way redress the power imbalances that routinely disadvantage indigenous peoples

60 Russi D., ten Brink P., Farmer A., Badura T., Coates D., Förster J., Kumar R. and Davidson N. (2013): The Economics of Ecosystems and Biodiversity for Water and Wetlands. P. 12. www.teebweb.org/wp-content/uploads/2013/04/TEEB_WaterWetlands_Report_2013.pdf

61 George Monbiot (2013): Pricing the Priceless. September 2013. http://www.monbiot.com/2013/09/18/pricing-the-priceless/

and traditional communities with constitutionally protected rights and elaborate, time-tested valuation systems.

The history of PES programmes already offers a treasure trove of past experience on winners and losers. Ever since the first PES programmes were set up in forest areas, proponents of payments for 'environmental services' have claimed that forest-dependent communities and forest peoples can be big beneficiaries. However, is this really true[62]? Even early PES programmes primarily tended to benefit the better-off within a community. They also often resulted in those natural areas for which payments were available becoming *less* valued. In some cases, they also are reported to have undermined traditional, non-monetary arrangements to protect natural areas – cultural or other restrictions on use and protection of specific places that are observed locally without payment.[63] Experience suggests that these tendencies will increase when PES means a trade in 'ecosystem services'.[64]

When discussing price versus value in relation to the payments to forest owners whose land was crucial for maintaining the New York City water supply, Geoffrey Heal notes: "W*e cannot legitimately say that the value of the watershed is $9 billion, because in fact the city never chose to pay this amount: it restored the watershed at a much lower cost of between $1 and $2 billion. We can say that the city saved $9 billion by environmental conservation; that is clear. Perhaps we can even say that environmental conservation enriched the city by $9 billion minus $1.5 billion, the cost of watershed restoration. This is a net enrichment of $7.5 billion. But this is not the same as placing a value on the watershed; it is valuing the consequences of a conservation policy.*"[65] These are crucial nuances that appear to have been lost in the rush to create a 'new economy of nature'.

Those arguing that: "*The economic invisibility of nature must end*," ignore another risk. Where they plan to introduce instruments based on a "nature" that capital could see, arrangements that protect specific locations based on a different, non-economic perception of "nature" may already exist. Under already existing arrangements, people would have acted to support a commons without payment. What happens to these motivations for stewardship of woodland, a hedgerow, a forest, a watershed, a creek or a spring when PES schemes are introduced?[66] Under such circumstances, payments may shift the logic from one that emphasizes the collective good to one that stresses

62 D. Kaimowitz (2008): The prospects for Reduced Emissions from Deforestation and Degradation (REDD) in Mesoamerica. International Forestry Review Vol.10 (3).

63 Fairhead, J., Leach, M. & Scoones, I. (2012) Green Grabbing: a new appropriation of nature? J. Peasant Stud., 39, 237-261. ; Robertson, M. (2012) Measurement and alienation: making a world of ecosystem services. Trans. Inst. Br. Geogr., 37, 386-401.

64 WRM (2014): Trade in Ecosystem Services. When payment for environmental services delivers a permit to destroy. http://wrm.org.uy/books-and-briefings/trade-in-ecosystem-services-when-payment-for-environmental-services-delivers-a-permit-to-destroy/

65 G. Heal (2000) Valuing Ecosystems Services. Ecosystems, Vol.3. P 27. Washington, DC: National Research Council.

66 Erik Gómez-Baggethun et al. (2010): The history of ecosystem services in economic theory and practice: From early notions to markets and payment schemes. Kosoy and Corbera (2010): Payments for Ecosystem Services as Commodity Fetishism. Ecological Economics 69, 1228–1236

personal gain. This shift has been observed empirically among blood donors[67], communities asked to host a nuclear waste facility[68], collectors of donations for a charity[69] and users of water in times of shortage.[70] In all of these cases, payments actually *reduced* people's willingness to contribute. In the example of the Costa Rican coffee plantation, the move from a norm-based to a price-based system may also prove to be one-way. Once price incentives are available, normative persuasion may no longer work, reducing the possibility that conservation will succeed[71].

"What is a cynic? A man who knows the price of everything and the value of nothing."
Oscar Wilde, Lady Windermere's Fan

4.2. CALCULATING THE ECONOMIC VALUE IS NOT THE SAME AS PUTTING A PRICE TAG ON NATURE

'It is possible to engage in framing and calculating in economic terms the services that nature provides without engaging in or implicitly endorsing the pricing of nature, or without setting up any dangerous momentum toward trading and financializing natural goods.' This is the argument of many people who believe that making the economic value of "nature" visible is the only way to spare these places from destruction.

This argument has two separate aspects. Firstly, it should be noted that describing something in economic terms and assigning an economic value to it does not *automatically* involve commodification or pricing. Unfortunately, however, the political question is not whether economic framing and valuation of nature *logically* entails commodification and financialization, but whether it encourages it *in practice*.

"*We use nature because she is valuable, but we lose nature because she has no price. Currently, no-one pays for the services that ecosystems provide to us. That is why people who are expected to maintain these systems are not receiving payment to do so. Thus, an economic incentive to do the right thing is missing. That is why we first have to create a market.*"[72]

This comment, from TEEB author Pavan Sukhdev, suggests that despite the insistence from TEEB that economic valuation is not just about putting a price tag on nature, pricing will be part of it. Why else would one create a market and talk about the need for an economic incentive?

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67 Titmuss (1971): The Gift Relationship: From Human Blood to Social Policy. Pantheon Books, New York.

68 Frey and Oberholzer-Gee (1997): The cost of price incentives: an empirical analysis of motivation crowding-out. American Economic Review 87, 746–755.

69 Gneezy & Rustichini (2000): Pay enough or don't pay at all. Journal of Economic Behavior and Organization 39, 341–369;

70 Zikos (2008): Urban water dilemmas under the multi-dimensional prism of sustainability. Transactions on Business and Economics 8 (5), 413–422.

71 Gneezy & Rustichini (2000): A fine is a price. The Journal of Legal Studies 29, 1–17.

72 Interview Fokus with Pavan Sukhdev 2008 www.focus.de/wissen/ ; emphasis added (Original in German: Original in DE „Wir nutzen die Natur, weil sie wertvoll ist, aber wir verlieren sie, weil sie kostenlos ist. Derzeit bezahlt niemand für die Leistungen, die uns Ökosysteme bieten. Deshalb erhalten die Menschen, die diese Systeme erhalten sollen, auch kein Geld dafür. Es fehlt also ein wirtschaftlicher Anreiz, das Richtige zu tun. Deshalb müssen wir erst einmal einen Markt schaffen.")

In reality, the ideological and institutional valuing structures in which policymaking operates – methodologies, mapping exercises, statistical reporting etc. – will strongly influence how the new economy of "nature" works.[73] The resulting economic figures – more importantly, the idea that such figures have intellectual standing – are not ivory-tower abstractions. They will be used in the context of the currently predominant power politics that favours privatization and economic growth at great ecological, social and economic cost. Directly or indirectly, translating ordinary descriptions of the activities and cycles associated with wetlands, forests and deserts into economic terms help pave the way for pricing and markets. This type of economic framing and valuation acts as both precondition and driver for commodification. *"[E]cosystem services did not have an existence as such …The 'red-legged frog habitat' service is not out there waiting; rather, it is fundamentally defined as a service in the process of its marketing and sale,*" geographer Morgan Robertson wrote.[74] Given the ideological, institutional and economic context in which economic valuation of 'ecosystem services' takes place, it is realistic to assume that 'putting a price tag on nature' will follow. "*Monetary valuation of ecosystem services does not equate to commodification of ecosystem services, but it paves the way (in the public discourse and sometimes technically) for commodification to happen.*"[75]

The mapping of Siam by British surveyors offers an interesting parallel. Western mapping techniques deployed over a century ago did not inherently constitute a land grab or express new kinds of nationalism or racism. However, had Siam not been mapped using the relevant methodologies and norms of Western cartography - as opposed to those that had previously been used, history may have been different. The Thai elites would not have been able to adapt those norms for their own purposes, making it more difficult for the British and French colonial powers to gain control over large swaths of what are now Burma and Cambodia.[76]

Examples like this show how processes that appear, or can be presented as, separate, distinct and isolated actually co-evolve, interact and reinforce one other. Once the specific institutional settings and socio-political contexts in which supposedly 'theoretical' processes take place are considered, any suggestions that there may be a 'purely technical' application of techniques of economically valuing 'ecosystem services' become implausible.

Some proponents of this new 'economy of nature' concede that the methodological and framing work that presents forests, wetlands, meadows and so forth in economic terms is one stage of a wider process. It also includes devising "*ways in which those valuations can be realized as cash*

73 U. Brand and A. B.M. Vadrot (2013): Epistemic Selectivities and the Valorisation of Nature: The Cases of the Nagoya Protocol and the Intergovernmental Science-Policy Platform for Biodiversity and Ecosystem Services (IPBES). 9/2 Law, Environment and Development Journal www.lead-journal.org/content/13202.pdf

74 M. Robertson (2012): Measurement and alienation: making a world of ecosystem services. Transactions of the Institute of British Geographers. Volume 37, Issue 3, pages 386–401.

75 Erik Gómez-Baggethun & Manuel Ruiz Pérez (2011): Economic valuation and the commodification of ecosystem services. Progress in Physical Geography 1–16.

76 Thongchai Winichakul (1994): Siam Mapped: A History of the Geo-Body of a Nation. University of Hawaii Press.

flows."[77] The observation that in the decade that followed the establishing of 'ecosystem service' valuation as an acceptable concept in the 1990s, the use of market instruments for conservation, such as PES schemes, increased exponentially, tends to support this view.

The earlier comment from TEEB author Sukhdev reveals another flawed assumption. Supposing that the purpose was indeed the conservation of "nature", then the rush towards economic valuation puts the cart before the horse: "*Providing the right incentives is not the same as valuing the services: we can provide the incentives without valuing the services, and we can value the services without providing incentives for conserving them. […]. So logically incentives come before valuation. Incentives are critical for conservation; valuation is not necessary for establishing the correct incentives.*" As Geoffrey Heal notes, "*If our concern is to conserve these services, then valuation is largely irrelevant. Let me emphasize this: Valuation is neither necessary nor sufficient for conservation. We conserve much that we do not value, and do not conserve much that we value.*" [78]

Another frequent argument is that: *'Despite methodological shortcomings, monetary valuation enables the comparison of different uses of ecosystems* **because valuation creates a common unit** *through which the costs and benefits of different land uses can be shown'. The common unit allows comparison of services that can be derived from a natural ecosystem (e.g., forest, wetland) and those of a converted ecosystem (e.g., cropland, aquaculture farms). Such comparisons can help to highlight trade-offs between private benefits and public costs as well as short-term and long-term consequences.*'[79]

Once again, the underlying assumption is that it is the lack of a common unit to allow comparisons of 'trade-offs' that is causing destruction of forests, conversion of wetlands, removal of mountain tops in mining operations, pollution of oceans and rivers and so forth. Community groups, indigenous peoples, peasant communities and others opposing the destruction of the land they depend upon know that it is not the lack of a common unit for comparing 'trade-offs' that causes the place they call home be sacrificed to some infrastructure project, shrimp farm or oil palm plantation. Rather, it is vested interests and the politics of power. A common unit for comparison of 'trade-offs' is unlikely to hold much sway.

Finally, as the example of the coffee plantation in Costa Rica in Chapter 3 demonstrates, there are risks of engaging in what may appear to be beneficial exercises in economic valuation as a method of protecting natural areas: We might be: *"taken at our word. Then, if there is a 'devaluation' of nature, as in the case of Finca Santa Fe, what are we to tell local stewards who have invested in our ideology, and how can we then protect nature from liquidation?"*[80]

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77 D. Pearce (2002): Introduction: Valuing the developing world environment. In: Pearce et al. (eds): Valuing the Environment in Developing Countries.

78 G. Heal (2000) Valuing Ecosystems Services. Ecosystems, Vol.3: 24-30. Washington, DC: National Research Council. Emphasis in the original.

79 Matthias Schroeter et al. (2014): Ecosystem services as a contested concept: a synthesis of critique and counter-arguments. Conservation Letters. Page 5 http://onlinelibrary.wiley.com/doi/10.1111/conl.12091/abstract

80 D. McCauley (2006): Selling out on nature. NATURE. Vol 443, 19 October 2006. Pg. 27-28.

4.3. LET'S FACE IT – THE FOREST WAS GOING TO BE DESTROYED ANYWAY. MAKING COMPANIES PAY FOR THE DESTRUCTION THEY CAUSE IS BETTER THAN NOTHING

'*A little is better than nothing*' is a powerful argument that comes in many variations: Appeals such as '*don't let the perfect be the enemy of the good*,' '*don't throw the baby out with the bathwater*', '*better use 'offsets' as a last resort than have no compensation at all*'; '*you know the protest at Little Wood failed and in the end people were left with nothing for their protest when they could at least have had some compensation*', etc. As with all expressions born of cynicism, they can be hard to refute.

It is true that countless local struggles have been lost against corporate takeover and the destruction of peoples' territories. In such cases, the forest has been destroyed anyway - in the face of of local opposition, maybe even in the face of of national and international campaigns supporting the local struggle. In all of these scenarios, communities that resisted the destruction of a particular place of nature did value it – most often in ways that an economic valuation cannot capture. However, they also often knew, and noted, the economic worth of the forest or the mangroves to their livelihoods. Nevertheless, articulating the economic value of their territory would not have stopped the bulldozers. Given that people in these situations are routinely denied even the compensation for the land that the law grants them, it is doubtful that any of their economic losses would be made good, irrespective of any economic valuation of these natural areas. Yet if, in the end, at least some payment goes to a conservation organisation that sets up an 'offset' site elsewhere? Isn't that better than nothing?

Many activists would argue that this is indeed worse than nothing. They will explain that for every local struggle that is lost, there is one that is won – cases where communities did 'face it' and put up a struggle that was nurtured by the deep belief that '*the forest was not going to be destroyed anyway*.' There are also cases, such as that of the resistance by the Tupinikim and Guarani in Brazil to the corporate takeover of their land and forest and its conversion into plantations. Here, the indigenous peoples never accepted that '*the forest was going to be destroyed anyway*', even decades after it was cleared and converted to eucalyptus plantations. As a result of holding on to the commitment that the forest was not going to be destroyed, they succeeded in standing firm against continued corporate intimidation and violence. They are now at the point where they were finally able to take back much of their land and begin to restore its forest cover.

What does the mindset captured in the phrase '*Making companies pay for the destruction they cause is better than nothing'* mean for the resistance of the Tupinikim and Guarani, the Nuxalk, the Navajo, the No TAV movement or the No Dirty Gold movement in Rosia Montana? It undermines their struggles, both in the present and in the future. Indeed, *'Making companies pay for the destruction they cause is better than nothing'* is a more effective tool for the corporate toolbox than it is for local resistance. It offers corporations a way of closing out a struggle: *"We paid, including for the right to trash the land. It is ours and there's an end to it!"* No further protest, no drawn-out struggle with troublesome locals, fighting for decades to get their land back. Some of the cases described in chapter 3 and in the further reading section in chapter 6 show how this

game has been played in the past. Some communities know all too well that the price of 'better than nothing' is a local struggle weakened. Communities that have seen their protests undermined by companies winning the struggle for expansion of their plantation operations because they could wave an international certificate that attests they are good corporate stewards of the land. The cynical *'Let's face it – the forest was going to be destroyed anyway'* has a way of turning into a self-fulfilling prophecy with the help of '*Making companies pay for the destruction they cause is better than nothing'.*

4.4. OFFSETS SHOULD ONLY BE USED AS A LAST RESORT

Many environmental and development NGOs that endorsed the use of carbon 'offsets' in the Kyoto Protocol did so with certain caveats. In addition to contributing to 'sustainable development' (although they hardly ever did, as a large number of studies have shown), 'offsets' were supposed to be used only 'as a last resort'. However, that is not how companies and governments used them. Instead, they became central to the whole EU Emissions Trading Scheme. In fact, by the end of 2015 companies in the EU are expected to have used up the 'offset' allowance that was supposed to have lasted until 2020. Companies like RWE or Arcelor Mittal have maxed their allowance of 'offsets' each year. In October 2009, Responsible Travel, once a strong voice in favour of 'carbon offsetting', announced it would stop offering them to its clients, stating that: "*too often, offsets are being used by the tourism industry in developed countries to justify growth plans on the basis that money will be donated to projects in developing countries*."[81]

In the UK, this experience is repeating with 'biodiversity offsets'. When Owen Paterson, the current environment secretary, first started talking about biodiversity, government officials were quick to reassure the public that 'biodiversity offsets' would not be an option when a developer wanted to build houses or roads or railway lines through ancient woodland. That was in 2013. By January 2014, Paterson was announcing that he was prepared to accept 'biodiversity offsets' for developments affecting ancient woodland, as long as many more trees were planted than destroyed.[82]

Again, other government officials stepped in to assure the public that accepting development through ancient woodland in return for 'biodiversity offsets' somewhere else would be "highly unlikely" and was "very hypothetical."[83]

However, one company that wants to build a service station in an ancient woodland – Smithy Wood near Sheffield, England – wasn't slow to grasp the opportunity. It is offering to 'offset' the destruction to the woodland with "*60,000 trees … planted on 16 hectares of local land close to the site*".[84]

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81 http://www.responsibletravel.com/copy/copy100427.htm

82 Ancient woods face axe in drive for homes. Government plan to 'offset' loss of habitat. The Times. 4 January 2014. http://www.thetimes.co.uk/tto/environment/article3965473.ece and Ancient Woodland Cut Down. The Guardian. 4 January 2014. http://www.theguardian.com/environment/2014/jan/04/ancient-woodland-cut-down-biodiversity-offsetting

83 http://www.bbc.co.uk/news/uk-25599249

84 http://www.sheffieldmotorwayservices.co.uk/benefits-environmental/

As columnist George Monbiot sarcastically observed: "*Who cares whether a tree is a hunched and fissured coppiced oak, worked by people for centuries, or a sapling planted beside a slip road with a rabbit guard around it? … Who, for that matter, would care if the Old Masters in the National Gallery were replaced by the prints being sold in its shop? In swapping our ancient places for generic clusters of chainstores and generic lines of saplings, the offsetters would also destroy our stories.*"[85]

There are also other problems with the argument that "offsets' are OK as a last resort'. 'Offset' trading always requires some level of territorial control; the 'owner' of the 'service' units and their intermediaries should ideally feel obligated to monitor the quality and existence of the commodity they paid for, and to check that the 'environmental service' is delivered in full accordance with the terms of the contract at all times. This may be easier where the 'offset' site is in a country where land and use rights are relatively clear, and fewer people depend directly on access to the land for their livelihoods. However, in many parts of the world, the situation is different; people may directly depend on access to forests. These are also often the most sought-after places for 'forest carbon offsets'. Even if it were the case that the buyer had bought the 'offset credit' only as a 'last resort', the intermediaries from whom the 'offset' was bought will still demand some level of territorial control over the relevant land. This risks undermining struggles for the recognition and guarantee of collective land rights of communities who live in and depend upon the forests. An 'environmental service' contract always suggests that there is an 'owner' of the area included in the contract, and that this owner has exclusive control over how the area is being used. As a result, many communities whose rights to their territory are not recognised or are under dispute – or do not involve 'ownership' in the sense that the 'offset company' requires – will suffer even greater pressure to leave their lands or be evicted. This is already a reality in many REDD and forest or tree-planting 'offset PES' projects. Even where communities manage to hold onto their land and to benefit in some way initially, the buyer of the 'environmental service' credit retains the right to enter the area for inspections and monitoring, to verify that the 'service' in question is being preserved and maintained.

Furthermore, in order to be viable, 'offset' trading requires some level of destruction to be viable even if the 'offsets' are supposedly to be used *'as last resort only'*: Without damage, there is nothing to 'offset'. '**Offset' trading** makes no attempt to change the current model of production and consumption that underpins the multiple crises we currently confront, including the gradual destruction of natural support systems that sustain human life. Rather, it relies on the model absolutely and reinforces it. The trade in both 'offsets' and the 'green economy' are based on the assumption that infinite growth and accumulation of capital is possible on a finite planet. The issue is simply how to organise that growth better and to make it 'green', and to 'offset' the damage in one place and hope that the ecosystem in the other place will grow back fast enough to be ready for the next round of destruction and a still more expansive territory of 'offsets' in yet other locations. As Rio Tinto noted: "*there is potential for land use conflict to become an*

85 George Monbiot. Reframing the Planet. 22 April 2014. http://www.monbiot.com/2014/04/22/reframing-the-planet/

increasingly significant issue,"[86] not just for Rio Tinto, but also for all industrial land use and infrastructure developments. 'Offsets' – whether for carbon, biodiversity, water, natural beauty, forest restoration or the pollination services that bumblebees provide – play a crucial role in this context of heightened conflict over land use decisions. It does not take a great deal of imagination to envisage that actions undertaken as a 'last resort' will always be a regular occurrence. As the UK Government frankly admits, "*biodiversity offsetting could help to accelerate the construction of homes by making it easier to overcome environmental objections.*"[87]

Yet all of this is little more than common sense. I no longer own a car, but when I did, I always assured myself that I would only use it when absolutely necessary, when all other options to get from A to B had been explored (except maybe for the "I'll stay home" option). When using the car appeared inevitable, I had a rule of minimising the impact by offering friends and neighbours a ride, given that 'I was going anyway'. Yet the reality was that after some initial conscientious use of this justification hierarchy, what I had assured myself would be 'last resort' actions happened pretty much each time I wanted to go somewhere further than walking distance and when there was even as much of a spot of cloud in the sky ("It might start raining!"). Moreover, my decisions became so last-minute, that most of the time I ended up being the only passenger in the car. '*Last resort*' had the tendency to quickly become *'pretty much any time'*. It was relatively easy to put an end to that perversion in the case of my car – I got rid of it. With 'offsets', ending the perversion once it has taken root is likely to be more difficult.

4.5. SOME VALUATION IS NEEDED FOR DETERMINING ACCURATE COMPENSATION FOR DAMAGE AFTER, SAY, AN OIL SPILL

There is an argument that the economic valuation of 'ecosystem services' of the kind pioneered by environmental economists is useful not only in creating new markets but also, for example, in lawsuits or official negotiations over compensation packages. Judges, or negotiators for communities seeking compensation from companies or government agencies, would benefit from better information about the economic value of the land that had been given up or had been destroyed by an oil or chemical spill. In such cases, however, would more detailed assessments of the economic value of the "nature" in question really contribute to a better outcome? Or would economic figures derived from the new techniques of valuing 'ecosystem services' serve merely to cloud the discussion of the fine or compensation payment?

Three examples are often cited: The effect of feeding cows the painkiller diclofenac (better known as Voltaren) that killed vultures, which led to an increase in rabies due to more stray dogs carrying the disease; insurance companies setting standard payments for loss of life or limb; and court cases like the one that pitted Ecuadorian communities against Texaco as well as compensation negotiations such as those between mining companies and affected people in Colombia.

86 Rio Tinto case study in: WBCSD (2012): Biodiversity and ecosystem services scaling up business solutions. Company case studies that help achieve global biodiversity targets.

87 Ancient woods face axe in drive for homes. Government plan to 'offset' loss of habitat. The Times, 4 January 2014. http://www.thetimes.co.uk/tto/environment/article3965473.ece

A useful fourth example is that of the Dongria Kondh tribes in Odisha, India. They resisted UK-based mining company Vedanta Resources, whose bauxite mines would have destroyed Niyamgiri, a mountain that is sacred to the Dongria Kondh. Temper and Martinez-Alier[88] describe how "*economic valuation fails here both as a means of conservation as well as a tool for environmental justice*", and how "*the naïve initial enthusiasm on the part of environmentalists seduced by the promises of the Chopra committee that 'forests will finally get the right price tag' soon turned to acrimony as they saw how the tolls was wielded: 'If you can pay, you can cut the forest, destroy the wildlife. No forest is so priceless it cannot be cut, or land so inviolate it cannot be had. Not by the poor, but by the rich'.*" Throughout the licensing process, organisations opposing the mine deployed a range of legal strategies. One such strategy focused on the economic valuation of the forest and mountain slopes, using a cost-benefit analysis argument. Hearings in this context focused exclusively on compensation packages and economic value of areas affected by the mine. Petitioners trying to present objections on behalf of the Dongria Kondh were told by the judge that "*tribal people have no place in this case*." Environmental licenses were granted and all Vedanta required was a final approval, since the mining would involve clearing forests. A different strategy was adopted, using the 2006 Forest Rights Act, a law that recognizes the rights of 'Scheduled Tribes and other forest dwellers' in forested areas. Section 5 of the law "*confers on each holder of forest rights, the duty and power to protect the natural and cultural heritage together with the wildlife, forest and biodiversity.*" The law also empowers those holders of forest rights to stop any destructive activity that endangers the forests. It was this legal strategy, insisting on upholding the rights enshrined in the 2006 Forest Rights Act, rather than the strategies that banked on economic valuation, which eventually led to the Supreme Court of India rejecting a request from Vedanta to obtain approval for their proposed mine. The Court ruled that "*If the project affects their religious rights, especially their right to worship their deity, known as Niyam Raja, in the hills top of the Niyamgiri range of hills, that right has to be preserved and protected.*"[89]

Discussing the first of the three previous examples, Tony Juniper, in his book 'What has nature ever done for us?' tells a story that "*concerns the economic value of India's vultures – or more accurately their former value. Across the subcontinent during the 1990s, India's three vulture species suffered a catastrophic decline. It was caused by an anti-inflammatory drug used to treat farm animals. Residues in the bodies of dead cattle and buffalo proved toxic to such birdsand their numbers plummeted […].*"[90]

88 L. Temper and J. Martinez-Alier (2013): The god of the mountain and Godavarman: Net Present Value, indigenous territorial rights and sacredness in a bauxite mining conflict in India. Ecological Economics 96: 79-87

89 Andrew Buncombe (2013): Indian Supreme Court rules to protect sacred hills against UK mine operation Vedanta Resources. 18 April 2013. www.independent.co.uk/news/world/asia/indian-supreme-court-rules-to-protect-sacred-hills-against-uk-mine-operation-vedanta-resources-8578954.html?origin=internalSearch

90 Tony Juniper (2013): What Has Nature Ever Done for Us? How Money Really Does Grow On Trees. Profile Books.

Citing numbers for the tonnage of flesh consumed by vultures, the human infections with rabies resulting from more stray dogs and the cost of "*an eye-watering US$34 billion*" to "*India's economy*", Juniper estimated that "*Taken together, the loss of natural services is believed to be costing the global economy more than 6 trillion dollars per year.*"[91]

The economic analysis made visible the pivotal role that vultures play in nutrient recycling through feeding on dead animals. In this particular context, it was this that reduced the risk of human infection with rabies; healthy populations of vultures means less food for the stray dogs. What determined the political action, however, was not the economic value calculated as the unremunerated contribution of the vultures to maintaining public health. Rather, it was the discovery of the connection between feeding diclofenac to cows and the death of the vultures. The Indian government immediately banned the use of this drug in cows. Economic analyses were not relevant to the political decision-making. Yet proponents of economic valuation of 'ecosystem services' routinely cite it as an example of how economic valuation will help bring about the right political decision "*to restore services once provided by nature*."

What about standard payments by insurance companies, where an arm is worth one amount, a leg another, loss of life still another amount. Will such valuations become more "rational" by these new economic techniques? Monetary figures mean different things in different contexts. The amount that an insurance company pays for the loss of a kidney after an accident has a very different meaning, as a number, from the amount someone might pay an Indian peasant for their kidney to be used for a transplant. In neither case is the monetary value in the insurance policy, nor the payment for the kidney, claimed to represent the full or even an adequate reflection of the multiple functions and feelings attached to the organ. The insurance payment, like a court award of damages to a victim of negligence, is merely one aspect of a wider and *open-ended* process of coming to terms with a wrong that has been committed. No one feels that payment for the kidney, presumably even the transplant patient, has "completed" or compensated for what is a complicated moral exchange between donor and recipient.

Litigation cases, like those over oil spills of Texaco or the Exxon Valdez or the negotiation of compensation agreements, highlight most clearly the danger involved in assuming that more and better economic valuation will necessarily improve legal practice.

The argument is that providing judge and jury with better information about the economic value of the land or water destroyed by spillage of oil or chemicals would lead to more adequate or just determination of the fine that should be demanded from the polluter. Or, that 'accurate' computing of the use-values that people derive from the land on which a mining company wishes to open an open cast mine would strengthen their bargaining position with the company over compensation payments.

Again, these arguments ignore the fact that a monetary figure has different meanings in different contexts. In most justice systems, a fine is not understood to be a certain amount of money that

91 http://www.rspb.org.uk/community/ourwork/b/martinharper/archive/2013/01/21/guest-blog-by-tony-juniper-what-has-nature-ever-done-for-us.aspx

has to be paid to close out, once and for all, an interaction between perpetrator and victim. Instead, it is merely one symbolic moment in a process that may include acknowledgement of moral or legal wrongdoing, an apology, further reparations, imprisonment, ongoing obligations and so forth. The issue is not the economic 'accuracy' of the fine (even if this could be determined – which is impossible), but rather its place in a larger, socially accepted scheme of reckoning. Thus the claim that 'economic valuation' is a way of setting penalties or compensation payments more 'accurately' may not just be beside the point, but may actually damage the fabric that helps hold a legal system or a society together.[92]

Different societies have different understandings of what is sufficient to right a wrong. In this context, monetary compensation may offer some redress, but more than this may be required for the damage or loss to be considered as adequately dealt with. Payment of a sum of money does not automatically close the matter.

This point also applies to compensation for damages to non-humans. Promoting the use of economic valuation to enable more 'accurate' determination of a monetary value capable of compensating for loss and damage incurred through destruction of, say, a forest fails to understand the role such estimates play in elaborating judgements. The judicial, commons or traditional processes called upon to determine the action needed to right such a wrong will each have their own set of procedures. As a rule, these procedures, and the numbers they produce, will not be "clarified" or "improved" or "made more exact" by new economic valuation techniques, simply because these procedures are rooted in different logics. For example, 'clarifying', 'improving' or 'standardizing' the practices by which penalties are imposed on volleyball players committing foul play are unlikely to aid football referees. By the same token, applying new economic valuation techniques to 'ecosystem services' will be of little use to judges or councils of elders involved in setting penalties for polluters whose actions have permanently damaged a fishery upon which a community has always depended. Worse, insofar as building faith in the 'accuracy' of ever more elaborate computations of the economic value of 'ecosystem services' that have been destroyed, it invites judges and juries to place more emphasis on the monetary payment or price-like component of legal judgements. This risks elevating this particular component above the non-monetary aspects, such as public apologies, public recognition of the wrong and commitment to change behaviour henceforth. It also increases the likelihood that, with the mere payment of a sum of money, a matter can be claimed to be closed. Again, this undermines legal tradition and damages the quality of legal processes and legal reasoning. In short, it questions whether such changes will bring better justice to the ways in which those responsible for destruction of "nature" are held to account after the fact.

Finally, it is important to note that (monetary) compensation has two very different contexts. One is retrospective. This is the context in which, for example, courts have to determine what losses or damage individuals or communities have suffered because of an oil spill or other accident. It is also the context where it has to be decided what costs public authorities will have to pay to

92 For further information, see also J. O'Neill (2013): The price of an apology: Justice, Compensation and Rectification. Research presented at seminars of the EU EJOLT programme.

clean up or mitigate health impacts after such an event. The Chevron-Texaco case in Ecuador and the Exxon Valdez case in Alaska are familiar examples. In all such cases, again, compensation is understood to consist of more than a mere transfer of money from one bank account to another.

In the other context, compensation becomes part of a prospective or forward-looking project evaluation, in which a decision has to be made whether to allow future destruction. In many such examples, the people to be compensated reject the idea of monetary compensation altogether. The response of a member of an Adivasi community in the Narmada Valley in western India, who was offered compensation for displacement as a result of the Sardar Sarovar Dam, is indicative:

> *"You tell us to take compensation. What is the state compensating us for? For our land, for our fields, for the trees along our fields. But we don't live only by this. Are you going to compensate us for our forest?…Or are you going to compensate us for our great river – for her fish, her water, for vegetables that grow along her banks, for the joy of living beside her? What is the price of this? …How are you compensating us for fields either – we didn't buy this land; our forefathers cleared it and settled here. What price this land? Our gods, the support of those who are our kin – what price do you have for these? Our adivasi (tribal) life – what price do you put on it?"*[93]

It is in this prospective context, of compensation for future damages, that most economic valuation initiatives are taking place. Here, economic valuation serves to justify **future** destruction through advance payment in the form of compensation packages, biodiversity banking and conservation 'offsets'. Framing "nature" in economic terms, the language, the methodologies, the data prepared are the same. This is irrespective of whether the context is one for determining the size of a fine as a penalty in relation to past loss and damage, or as compensation to justify future destruction of natural areas. Even for many who support the use of economic valuation as a way of presenting more accurate compensation estimates for damage after, say, an oil spill, the use of economic valuation to serve to justify future destruction is problematic. Yet, similar to the myth that 'calculating the economic value is not the same as putting a price tag on nature', the same economic valuation techniques and methodologies will be used irrespective of whether the context is retrospective, or prospective, where the calculations help pave the way for more destruction of nature.

"Not all that counts can be counted and not all that can be counted counts".
Einstein

93 Bava Mahalia (1994): Letter from a Tribal Village. Lokayan Bulletin 11.2/3, Sept-Dec. In: John O'Neill (2013): The price of an apology: Justice, Compensation and Rectification. Research presented at seminars of the EU EJOLT programme.

5. THE NEED FOR A LINE IN THE SAND

"We do know what happens when you put a price on the part of nature that has already been drawn into the financial markets – land: millions of people were made landless, social exclusion became a reality – and it did not lead to the protection of the land.[94] Are we facing another Enclosure?"
Beverly Keene, Jubilee South

From the Enclosures of 18th century Britain to the green grabbing of today, the placing of a price tag on the part of nature we now call 'land' has not strengthened the values these places hold for local peasant and forest-dependent communities and indigenous peoples. Instead, it has often resulted in expropriation, landlessness and destruction of fertile lands so that maximum short-term profits at great long-term cost can be extracted. The impact of the processes by which 'ecosystem services' are assigned prices may well turn out to be just as far-reaching. In '*Measurement and alienation: making a world of ecosystem services*'[95], geographer Morgan Robertson explains how the social practices through which nature is turned into 'ecosystem services' resemble the process of turning human work into wage labour. They are likely to have similarly profound effects on society. Buying biodiversity 'offsets' is one thing; creating societal acceptance for the perception that the natural metabolism that sustains life is a system for commodity production is a different matter altogether. "*In Marxian language, it is the difference between the employment of a worker for wages, and the creation of a society in which the worker always ready understands her/his labour as a commodity,*" Robertson notes. This process of financialization – the attempt to turn "nature" into abstract packages of value that can be represented by money, and thus inserted into finance and credit systems – is still in its early stages. The process has already exposed many absurdities, numerous contradictions and much incoherence in attempting to define clear boundaries around things that do not easily conform to such definitions or units of measurement. It would be tempting to advocate for an activist network of experts to expose these contradictions. Yet, as Morgan Robertson cautions, "*it is one thing to point out the abundant absurdities in reducing ecosystems to commodities. But […] says Blomley: 'to stop here is to risk ignoring the ways in which such absurdities organize the world for us in often brutally efficient and powerful ways'.*" Sadly, the early examples of what 'trading in environmental services' looks like in reality already proves the point geographer Nicholas Blomley makes. They provide sufficient reason for saying 'No' to more of the same.

94 1/3 of all fertile lands worldwide are considered degraded. Annually, we lose an area of fertile land the size of Bulgaria.

95 M. Robertson (2012): Measurement and alienation: making a world of ecosystem services. Transactions of the Institute of British Geographers. Volume 37, Issue 3. June 2012.

SAYING "NO TO 'OFFSETS' AND THE VALUATION OF NATURE" IS SAYING "YES" TO TREASURING AND RESPECTING THE WEB OF LIFE IN ALL ITS DIVERSITY AND TO SUPPORTING LOCAL RESISTANCE AGAINST DESTRUCTION OF "NATURE".

Saying "No to 'offsets'" is therefore also saying "Yes" to keeping corporations within laws defined by clear limits for everyone, backed up by fines and penalties, not laws defined by fees that buy permission to destroy and pollute. It is saying "Yes" to acknowledging the interconnectedness between human and non-human natures and "Yes" to treasuring and respecting natural areas in all their diversity. It is also saying "Yes" to supporting local resistance against destruction of the land that provides local livelihoods and sustains traditional ways of life and local economies that have conserved the nature that is now at threat from 'development'. Mentioning even a fraction of these brave and creative initiatives and struggles of resistance would take many more pages than are available in this publication. The reports and films in the 'further reading and viewing' chapter provide some examples of resistance against the transformation of forests into carbon credits. Of the websites listed in the links section, in particular Carbon Trade Watch, the World Rainforest Movement, the Critical Information Collective and Farmlandgrab provide information, films and photo exhibitions on many more.

In Europe, Save Gosforth Wildlife[96] shows how the UK government is using 'biodiversity offsets' to undermine local opposition in Tyneside in the North of England against the development of 366 houses. These are being built on one of the few remaining nearby green spaces that have not already been encroached on by golf clubs and other forms of urban development[97]. In the Forest of Dean, in southern England, local groups warn that 'biodiversity offsets' could be used to shortcut planning procedures and thus undermine local opposition to the Cinderford building project; along the HS2 high-speed train line from London to Manchester. Meanwhile, local groups insist that 'biodiversity offsets' elsewhere are no compensation for destroying Alvecote Woods. At Smithy Woods near Sheffield, local organizers are exposing how the UK government's promise to not accept 'biodiversity offsets' to approve destruction of ancient woodland did not survive long enough for the ink to dry.

In Notre Dame des Landes, France, ecologists supported local activists protesting at the site of a proposed new airport. They exposed how government claims of building a 'green airport' through, among other measures, promising to 'offset' the destruction of wetlands as part of the airport construction were nothing but empty promises, built on incoherent 'biodiversity offset' methodologies

96 For an excellent photo exhibition and more detail on these initiatives where people say yes to treasuring and no to destruction, measuring, valuing and offsetting, see http://photos.criticalcollective.org/index.php?module=media&pId=100&category=gallery/exhibition

97 http://saveourwoods.co.uk/articles/nppf/biodiversity-offsetting-permits-previously-rejected-housing-development/

and calculations. In Rosia Montana[98], grassroots resistance against a Canadian mining company attempting to open what would have become the largest opencast gold mine in Europe, has grown into the largest campaign in Romania over a non-political cause in the last 20 years.

In Cochabamba in April 2010, at the first World People's Conference on Climate Change and the Rights of Mother Earth[99], a popular alliance of NGOs, networks and social movements was forged to formulate its own agenda. At Rio+20, the process continued, resulting in a common stance of opposition to the "green economy", with a collective agenda. Since 2011, a network of organizations, movements, campaigns and affected communities from different global regions have been building the global campaign to Dismantle Corporate Power and Stop Impunity.[100] The reports and articles in the following chapter are a tribute to the rising resistance in many places and that says "Yes" to treasuring and respecting natural areas in all their diversity; and "Yes" to opposing the destruction of forests, wetlands, mountainside, deserts – the places that people treasure. This resistance demonstrates that there is – and always has been – a majority who value the particular "nature" at risk; those values cut deeper than knowing the economic value of some select elements of the specific place at risk of being destroyed.

6. FURTHER READING AND VIEWING

Statement No to Biodiversity Offsets (EN, FR, ES, PORT among other languages) http://no-biodiversity-offsets.makenoise.org/

Stop the takeover of nature by financial markets. A short animated film about the takeover of nature by financial markets and the real alternatives from civil society. http://vimeo.com/43398910

REDD Monitor website with articles and blog in English. Most widely read website with information and analysis critical of REDD and trading in 'ecosystem services'. www.redd-monitor.org

10 things communities should know about REDD. Booklet published by the World Rainforest Movement (WRM). Available in EN, FR, ES, PORT, in EN. http://www.wrm.org.uy/oldsite/publications/10AlertsREDDeng.pdf

Biodiversity offsetting in practice. FERN Briefing that describes "how biodiversity offset schemes have fared so far and shows that the picture is far from rosy". Examples show how biodiversity offsets are used in the UK and France to undermine local opposition against unnecessary large infrastructure projects. www.fern.org/sites/fern.org/files/Biodiversity3_EN.pdf

Nature is not for Sale! Respect communities' rights. Stop the takeover of nature by finance! Leaflet produced by Les Amis de la Terre France that shows why making nature, ecosystems and water tradable will not solve the current global crises. It also criticises the finance sector's

98 bSave Rosia Montanaăhttp://www.rosiamontana.org/en/

99 bhttp://pwccc.wordpress.com/2010/04/24/peoples-agreement/

100 http://www.stopcorporateimpunity.org/

'Natural Capital Declaration' which outlines new market mechanisms linked to the so-called 'green economy'. Available in FR; ES, EN. http://www.criticalcollective.org/?publication=nature-is-not-for-sale

Morgan Robertson (2006): **The nature that capital can see: science, state, and market in the commodification of ecosystem services**. Environment and Planning D: Society and Space 24:367–387.

Morgan Robertson (2012): **Measurement and alienation: making a world of ecosystem services**. Transactions of the Institute of British Geographers. Volume 37, Issue 3. June 2012.

Kathleen McAfee (2012): **The contradictory logic of global ecosystem markets**. Development and Change 43(1).

Melissa Leach & Ian Scoones (2013): **Carbon forestry in West Africa**: The politics of models, measures and verification processes. Global Environmental Change 23 (2013) 957–967.

R. Muradian et al. (2013): **Payments for ecosystem services and the fatal attraction of win-win solutions.** http://r1.ufrrj.br/cpda/wp-content/uploads/2013/11/Conservation-Letters.pdf

Martin O'Connor (1993): **On the misadventures of capitalist nature**. Capitalism Nature Socialism, 4:3, 7-40. http://dx.doi.org/10.1080/10455759309358553

Jason W. Moore (2014): **The Capitalocene**. Part II: Abstract Social Nature and the Limits to Capital. http://www.jasonwmoore.com/Essays.html

Kenneth Iain MacDonald (2013): **Grabbing "Green": Cynical Reason, Instrumental Ethics and the Production of "The Green Economy"**. Human Geography Volume 6, No. 1, 2013: 46-63.

REPORTS ON SPECIFIC PROJECTS:

Carbon Discredited. 2012 report by FERN on the N'hambita Forest Carbon Offset Pilot Project in Mozambique. http://www.fern.org/nhambita

redd: the realities in black and white. By Friends of the Earth. 2010. Includes case studies on REDD initiatives from Indonesia, Paraguay, Costa Rica, Nigeria, Brazil and Liberia. http://www.redd-monitor.org/2010/12/02/redd-the-realities-in-black-and-white-new-report-from-friends-of-the-earth-international/

In the redd: australia's carbon offset project in central Kalimantan. 2011 Friends of the Earth report on the *Kalimantan Forests and Climate Partnership (KFCP) agreement* between the Governments of Indonesia and Australia. http://www.redd-monitor.org/2012/03/01/in-the-redd-new-report-from-friends-of-the-earth-international-about-the-kalimantan-forests-and-climate-partnership/

REDD+ in Madagascar: You can't see the wood for the carbon. Basta! & Amis de la Terre. 2013. Report about *The Holistic Conservation Programme for Forests*, a REDD project in Madagascar and funded by Air France, run by WWF Madagascar, with support from Etc Terra and the GoodPlanet Foundation. http://www.amisdelaterre.org/IMG/pdf/rap_madagascar_en-2.pdf

Conservation International REDD pilot project in the Democratic Republic of Congo: a different kind of Disney production. Belmond Tchoumba for WRM. 2011 on the REDD pilot project being

undertaken by Conservation International and the Walt Disney Company in the province of North Kivu in the Democratic Republic of Congo. http://wrm.org.uy/books-and-briefings/democratic-republic-of-congo-conservation-international-redd-pilot-project-a-different-kind-of-disney-production/

Fixing Carbon, Losing ground. Payments For Environmental Services and Land (in)security in Mexico. By Tracey Osborne. Human Geography. Volume 6, No. 1, 2013. http://www.hugeog.com/

Carbon Trading and REDD+ in Mozambique: farmers 'grow' carbon for the benefit of polluters. La Via Campesina Mozambique. 2012. http://viacampesina.org/en/index.php/actions-and-events-mainmenu-26/-climate-change-and-agrofuels-mainmenu-75/1265-mozambique-carbon-trading-and-redd-farmers-grow-carbon-for-the-benefit-of-polluters

Market Masquerades: Uncovering the Politics of Community-level Payments for Environmental Services in Cambodia. By Sarah Milne and Bill Adams. (2012). Article in Development and Change on *the social and political dimensions of a 'REDD-like' PES scheme in the Cardamom Mountains in Cambodia.*

After the green rush? Biodiversity offsets, uranium power and the 'calculus of casualties' in greening growth. Sian Sullivan 2013. Human Geography. 6(1):80-101. http://siansullivan.files.wordpress.com/2010/02/sullivan-after-the-green-rush-2013-final.pdf

Carbon versus food. A case study of the "Fair Forest Carbon compensation" projects of French company, Pur Projet, in the region of San Martin, Peru. Friends of the Earth France. Pur Projet, the French organisation launched in 2008 by entrepreneur Tristan Lecomte, chose San Martín in Peru as the testing ground for its first carbon offset projects, The report is available in French, English and Spanish. www.amisdelaterre.org/purprojet

PORTUGUESE:

Carbon Trading and REDD+ in Mozambique: farmers 'grow' carbon for the benefit of polluters. La Via Campesina Mozambique. 2012.

Considerações sobre um projeto privado de REDD no interior do Estado do Acre – Brasil. Movimento Mundial pelas Florestas Tropicais (WRM). 2013. http://wrm.org.uy/pt/livros-e-relatorios/consideracoes-sobre-um-projeto-privado-de-redd-no-interior-do-estado-do-acre-brasil/

A iniciativa carbono, comunidade e biodiversidade no corredor ecológico Monte Pascoal – Pau Brasil: Outro fracasso da compensação de carbono. Movimento Mundial pelas Florestas Tropicais (WRM). 2013. http://wrm.org.uy/pt/livros-e-relatorios/a-iniciativa-carbono-comunidade-e-biodiversidade-no-corredor-ecologico-monte-pascoal-pau-brasil-outro-fracasso-da-compensacao-de-carbono/

Biodiversidade à venda? Saiba por que o TEEB – A Economia dos Ecossistemas e da Biodiversidade pode transformar natureza em mercadoria (2011). http://br.boell.org/downloads/pdf_teeb_final_05-12.pdf

REDD. Mercado de Carbono. Pagamento por Serviços Ambientais. O que são? O que fazer? http://wrm.org.uy/html/wp-content/uploads/2012/12/cartilha_REDD_PSA_carbono.pdf

FRENCH:

Les Chasseurs de Carbone. By Noemie Bisserbe. 2011. 'La forêt africaine est aujourd'hui en enjeu. À la bourse mondiale du carbone, ses millions d'hectares d'arbres valent de l'or. États et entreprises l'ont bien compris, qui se sont mis en chasse pour alimenter à marche forcée ce nouveau marché. Au détriment des populations expulsées qui préfère parfois mettre le feu au précieux or vert.'

REDD+ à Madagascar : le carbone qui cache la forêt. Basta! & Amis de la Terre. 2013. Madagascar compte quatre projets pilotes Redd+ menés par des grandes ONG de conservation. La fondation GoodPlanet/Etc terra et de WWF Madagascar mènent le projet holistique de conservation des forêts (PHCF) à Madagascar depuis 2008, avec le soutien financier d'Air France. http://www.amisdelaterre.org/Madagascar-un-projet-REDD-injuste.html

Carbon versus food. A case study of the "Fair Forest Carbon compensation" projects of French company, Pur Projet, in the region of San Martin, Peru". By Friends of the Earth France. http://www.amisdelaterre.org/purprojet

LINKS:

http://no-biodiversity-offsets.makenoise.org/

http://www.carbontradewatch.org

http://farmlandgrab.org/

http://wrm.org.uy

http://www.thecornerhouse.org.uk

http://www.fern.org/campaign/biodiversity-offsetting

http://www.redd-monitor.org

http://naturenotforsale.org

http://ppel.arizona.edu/blog/2013/03/15/natural-capital-myth

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Brussels, July 2014

This booklet was sponsored by the German Federal Ministry
for Economic Cooperation and Development.

'*Nature is destroyed because it's invisible to politicians and business*', advocates of economic valuation say. The implicit assumption: Create a '*nature that capital can see*' and the loss of biodiversity will be stopped. But it isn't that simple! Possibly far-reaching changes in perception and subtle changes to legal principles will go hand-in-hand with creating a '*nature that capital can see*'. Abundant absurdities are coming to the fore in the attempt to turn the web of life into neatly packaged, measurable and comparable 'ecosystem service' units. They deserve exploring. This brochure takes up arguments put forth in the debate about a new economy with nature. It shows that the political question is not whether economic valuation *automatically* involves putting a 'price tag on nature', but if it encourages pricing in *practice*. Sadly, the early examples of what 'trading in environmental services' looks like in reality already provide sufficient reason for saying 'No' to more of the same.

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