

Trade in Ecosystem Services

When 'payment for environmental services'
delivers a permit to destroy



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Why a briefing on PES, or payment for ‘environmental services’?

UN agencies, industry, ecological economists, a growing number of consultancies and conservation NGOs repeat their call to action with increasing urgency. The continued provision of functions such as water filtration of forests and soils, carbon storage in soils and vegetation, biodiversity, pollination of crops by bees, etc. is crucial for humanity and therefore needs to be conserved. The action they propose is based on the belief that the only way to value and thus protect nature is through making visible in economic terms the value of these functions that nature provides. They argue that once capital markets, politicians and corporations can see the enormous economic value of what they call ‘ecosystem services’ – the functions and processes that nature provides to humanity – it would be easier to demand that nature be protected. Some also propose to use this economic value that apparently has not been visible to government, corporations and financial capital as a way to finance the protection of nature – through payments for these ‘environmental services’ (PES). Following this logic, a nature that capital can see is all that is required for environmental destruction to end.

Another way of looking at payments for ‘environmental services’, however, is that PES is part of a process whereby financial capital will dominate even more how nature is used and who controls access to territories – a process also described as the financialization of nature. From this perspective, far from reducing destruction, a nature that capital can see becomes an integral part of maintaining an economic system which depends on destruction of nature to survive: Nature is first reduced to units of ‘ecosystem services’ which in turn become a new item that capital markets can trade.

This briefing builds on earlier WRM publications on the topic of *Financialization of Nature* and *Payments for Environmental Services*, the WRM bulletin issues 175¹ (February 2012) and 181² (August 2012). Those publications describe the history of ‘environmental services’ and explain some financial terms like ‘assets’, and ‘derivatives’. These bulletins also describe the role and content of studies often cited by proponents of Payments for ‘Environmental Services’, like the **Millenium Ecosystem Assessment** (MEA) and **The Economics of Ecosystems and Biodiversity** (TEEB). These two studies in particular were essential in moving the PES concept forward in recent years. They helped create the political space for it to be advanced internationally. Many new trends and developments have emerged since WRM published those two bulletins, and the new shape of PES is becoming more visible: Governments have begun to compile ‘Natural Capital Accounts’; Brazil has changed its Forest Code to allow for the trade in ‘forest restoration credits’; the European Commission, the UK and several other European countries are debating changes to their environmental laws to set up a trade in biodiversity offset credits; the Brazilian state of Acre has adopted a whole law called ‘System of Incentives for Environmental Services’ (SISA). With the financial support of the German government, the Brazilian state is setting up the institutions, regulations and committees to implement this SISA law, starting with the infrastructure needed for the trade in the capacity of forests to store carbon, the ISA- Carbono Programme. In other words, governments, corporations and the financial sector – neither of

¹ <http://wrn.org.uy/bulletins/issue-175/>

² <http://wrn.org.uy/bulletins/issue-181/>

whom have made themselves a name as defenders of nature until now - are all showing an increased interest in PES.

We therefore felt it was time to return to the issue, look at the concept of 'Payment for Environmental Services' in its new cloths; examine some of the claims made by those who argue that putting a price on nature is the only way to save nature; show who some of the actors are, and what motivates their interest in PES. Above all, the briefing is a contribution to documenting how this latest version of the PES theory is playing out on the ground, in the territories that forest communities depend on for their livelihood and way of life.

Introduction

"The economic invisibility of nature must end,"³ Pavan Sukhdev, figurehead of the TEEB study, writes on his blog. His statement is echoed by many economists, corporations and conservation NGOs. Nature's value is not visible, they claim, and therefore the functions that nature provides - from water filtration in forests and soils, carbon storage in soils and vegetation, biodiversity, pollination of crops by bees, etc. keep being sacrificed to realise the visible economic gain that can be made from destroying nature. "[I]f only we had the tools to measure these values and integrate them into business decision-making", the World Business Council for Sustainable Development, an influential industry lobby group at the UN, writes in its *Guide to Corporate Ecosystem Valuation*.⁴ UN agencies, corporations conservation NGOs and ecological economists thus claim that the only way to ensure that nature is valued and protected is through making visible in economic terms the value of what they call 'ecosystem services' - the functions and processes that nature provides, including to humanity. They argue that once capital markets, politicians and corporations can see the enormous economic value of these 'ecosystem services' it would be easier to demand that nature must be protected. Some also propose to use this economic valuation to finance the conservation of nature - through payments for these 'environmental services' (PES). Economists have come up with first estimates of the economic worth of 'ecosystem services' and many initiatives, programmes and research and development aid grants are handed out to prepare for the future marketing and trade in these 'environmental' or 'ecosystem' services'.

Ever since the first PES programmes were set up, proponents of payments for 'environmental services' have claimed that forest dependent communities and forest peoples will be the big beneficiaries. But are they really? Even the early PES programmes had a tendency of primarily benefitting the better-off within a community. They also showed how the intrinsic value of nature often becomes valued less and that traditional, non-monetary arrangements to protect nature's functions - cultural or other restrictions on use and protection of nature that are observed locally without payment - can be undermined when

³ <http://pavansukhdev.com/>

⁴ WBCSD Guide to Corporate Ecosystem Valuation. Page 12, EN version.

<http://www.wbcsd.org/pages/edocument/edocumentdetails.aspx?id=104&nosearchcontextkey=true>

PES schemes are introduced. Concrete examples emerging from how the trade in nature is implemented suggest that these tendencies will be even stronger when PES means trade in 'ecosystem services'.

Increasingly, PES means 'payment that gives permission to destroy'. In order to set up such payments that give permission to destroy, nature in all its complexity, interconnectedness, diversity and uniqueness is packaged into units of 'ecosystem services' to an extent that far exceeds the commodification necessary for previous PES programmes. Certificates (often called "offset credits") that are used as guarantee that the 'service' destroyed in one place is being maintained somewhere can be bought by corporations in exchange for permission to destroy an 'equivalent' piece of nature where it is lucrative for them. A mining company might only be able to get a license to expand their mine into a protected area where mining has been prohibited by law if they buy 'biodiversity offsets' to save extra biodiversity elsewhere in return for the biodiversity in the National Park that the new mine will destroy; urban development may only be allowed in a city's green belt that did not allow any urban developments before if the real estate company will buy 'biodiversity offsets'; or a cattle farmer or logging company may be spared from restoring forest illegally cleared if he buys 'forest restoration credits' on a 'environmental services' exchange. Nature, once it has been packaged into units of 'ecosystem services' that can be compared with each other can also be traded as a financial asset. The 'ecosystem service' becomes available for speculation. A unique and interconnected nature is thus turned into separate 'service' units that can be compared with each other, that can be mixed and matched, bought and sold, because one is considered an equivalent and adequate replacement of the other. This abstraction has turned dynamic, ever-changing and interconnected nature into linear, measurable and comparable units of 'ecosystem services'.

The abstraction also allows the merchants of these 'ecosystem service' certificates to pretend that the units exist without their surroundings, that there is no interaction between these units of 'environmental services' and the cultures, the social practises, the land use that evolved with and depends on the part of nature that has been reduced to an 'ecosystem service'. Inherent in the concept of PES offsets, and in particular, inherent in the trade in 'ecosystem services', is therefore the assumption that one can separate the environmental dimension of destruction from the social dimension. PES compensation schemes that include the permission to destroy as long as the 'environmental service' is replaced somewhere else willingly accept the uncompensated, and un-compensatable destruction of the social relation, the culture, the social practise tied to nature. Along the way, laws are being changed so that the previous requirement of guaranteeing 'no biodiversity loss' is replaced with the much weaker obligation to ensure that there is 'no **net** biodiversity loss'. Where the law prohibited destruction of important ecological functions before, revised laws will make destruction of these areas with important ecological functions possible as long as the 'developer' can show that no **net** loss will occur because apparently, the nature that is being destroyed in one place will be recreated and saved somewhere else.

From PES to ‘offset’ payments for ‘ecosystem services’

“The goal is to transform environmental legislation into tradable instruments”⁵

Pedro Moura Costa, Bolsa Verde Rio de Janeiro

Different types of PES

The term ‘Payment for Environmental Services’, or PES, is used to describe many different arrangements to pay for a certain practise that will protect or restore some function or process of nature. These different arrangements are all referred to as PES. Yet, they have entirely different historical and social origins because the struggles, motivations and pressures that gave rise to them differ greatly.

The following section describes some shared characteristics of four common types of PES, based on examples for those different PES arrangements. These examples show how the original PES programmes that used public funding to implement a policy that was for the public good (I) 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 gives permission to destroy or pollute above a legal limit (IV) have become more controversial.

I. **PES to implement public policy that protects nature.** These are PES schemes where governments use public money to pay or subsidize for restoration or protection of ‘environmental services’ that are protected through a public policy. Some of the best-known PES examples include (a) New York City or Vancouver city paying watershed owners who are located outside the city boundaries and are therefore not bound by the cities’ regulation to preserve the land that is vital for the cities’ water supply; (b) the government of Costa Rica using public money raised from collecting a tax on petrol consumption to pay land owners to not cut down or restore forests; or (c) the EU’s Common Agricultural Policy payments to farmers to preserve biodiversity. Another often cited example is that of two communities in the Indian Himalayas, Kuhan and Ooch, who reached an agreement to protect the streamflow that both communities depend on (see box). While the payment is not linked to implementation of a public policy it shares many of the characteristics of the PES schemes that primarily are subsidy payments to implement a policy that is 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 directly among the parties involved. The payment may compensate for the lack of enforcement capacity in relation to a ban on clear cut logging. In the case of the NYC and Vancouver watershed PES programmes, the payments were motivated by a policy that was in the public interest: the restoration of degraded forests and the prevention of further forest loss. The ‘service’ is described in very general terms, or not at all. No direct or detailed measurement of the quantity or quality of the specific ‘service’ for which payment is received, is necessary and ***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 bought or sold. Modification of existing law to create new assets or define environmental commodities is not required. Risk of damage to community cohesion or restriction of rights to access and use of community territory

⁵ Pedro Moura Costa, co-founder of carbon offset company Ecoscurities and founder of Bolsa Verde Rio de Janeiro.
<http://www.bvrrio.org/site/>

is relatively low, but certainly exists as the example of the PES scheme in Costa Rica shows. In the Costa Rica PES scheme poorer farmers and indigenous communities were unable to gain access to the the programme when mainly better-off and larger land owners benefitted from the payments. Contracts specifying changes to land use or use of the territory are required but obligations only last for the duration for which payment is received.

Payment to avoid erosion as part of complex community negotiations

Two communities in the Indian Himalayas, Kuhan and Ooch, are dependent on the same river that flows through their territories. To ensure a water supply for farming, the residents of Kuhan had built a small dam on a creek running through the village. But the reservoir soon began to fill up with silt, greatly decreasing its capacity. It was determined that most of the silt was coming from the village of Ooch, located upstream, and was caused by the soil erosion resulting from intensive cattle grazing. Under the agreement reached between the communities, the village of Ooch banned cattle grazing on its common land for eight years and in return, the village of Kuhan paid them for this sacrifice. It also paid for the planting of tree saplings to combat erosion. In both villages, the entire community participated in the process, and the agreement was discussed by everyone.⁶

II. Private sector donations and government programmes not linked to public policy.

These are schemes where companies or public entities offer PES projects 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, coal, construction of a mega-dam or roads. Examples include corporations like Coca-Cola paying for water protection to compensate for damage to community water, either at the point where they extract the water or the PES project could also be located elsewhere.

Ecuador's Socio Bosque Programme

Ecuador's Socio Bosque programme is a variation of PES programmes not directly linked to a public policy. The country's Ministry of Environment enters into conservation agreements with private and communal landholders.⁷ In return for maintaining forest cover, the programme offers yearly monetary payments. While Socio Bosque was set up without addressing climate change as an explicit objective, it has become one of the components of the ministry's national REDD+ strategy.

Programmes like Socio Bosque share many of the characteristics of PES schemes described under II. But unlike in the typical PES examples motivated by corporate public relations considerations, here, the state is involved in the distribution of payments and the scheme relies on state infrastructure. Socio Bosque was initially funded entirely by the Government of Ecuador. The government is now looking to diversify the sources of funding for the programme. It is considering including payments by industry as a compensatory condition for obtaining licences for extractive and other high-impact activities (which the government hopes will

⁶ 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.ceeec.net/case-studies/payment-for-ecosystem-services-pes-in-india-from-the-bottom-up/

⁷ Ecuador's Socio Bosque Programme. 2012.

<http://cdkn.org/resource/private-conservation-agreements-support-climate-action-ecuadors-socio-bosque-programme/>

eventually contribute up to 40% of Socio Bosque's budget); voluntary corporate contributions, possibly linked to some form of environmental offsetting, or international REDD+ payments.

PES programmes such as Socio Bosque seem to be waiting to see if the promised environmental market that motivated their creation will materialise. If the market does materialise, such programmes would likely change and turn into 'environmental service' payment schemes as described in IV, below.

PES initiatives of this type are voluntary, without a law demanding the payment. In general, ***no claims are made that the payment is 'equivalent' in economic or ecological terms to the damage caused.*** The amount of payment is decided by the company or public entity offering the payment. Some basic indicators to verify what could be claimed to be the result of the payment might be used but no quantification and monitoring of specific 'ecosystem services' is necessary. Financial markets are not involved and no 'environmental services' commodity is created or traded. Contracts that describe how the payment will be spent might be involved but the obligations only last for the duration for which payment is received. Risks to community cohesion and conflict exist, especially when the payments are by the company or public entity linked to a development or industrial activity that is opposed by (part of) the community.

III. **Voluntary payments for pollution or destruction that is seen as excessive.** These schemes are funded by individuals, public institutions, NGOs and corporations that ***voluntarily*** choose to "nullify" their polluting activities. The individual or the public might consider the activities a 'moral offense' or the motivation for the payment might be to avoid a reputational or image risk if no 'compensatory' measures are seen to be taken by a company, institution or individual responsible for above average levels of pollution or destruction of nature. Examples of such voluntary offset payment schemes include FIFA offering offsets for players and visitors attending Football World Cup games and for the emissions generated from the construction of new stadiums and infrastructure, a rock star buying offsets for a tour or CD release, an individual buying carbon offsets for a flight that releases carbon dioxide, etc.

IV. **PES as permission to destroy or pollute above a legal limit.** Environmental Laws are changed to allow a company to pollute or destroy nature above a limit set by the law. Destruction above the limit is considered in compliance with the law as long as a payment is made for the extra pollution or destruction to be 'offset' elsewhere. Causing such pollution or destruction of nature above the legal limit was an offense before, a violation of the law - and it could result in a fine or other penalty. The change of the law that includes PES offsets replaces the risk for payment of fines or other penalties with the option of the company paying a fee to 'offset' or 'nullify' the pollution or destruction of nature above a legal limit. The company is considered to be complying with the law as long as a payment has been made to someone who will 'offset' the excess pollution or destruction caused, even if the company itself has caused more pollution or destroyed more nature in a particular place than is allowed by law. The same corporate activity that before was considered a violation of the law, and for which the company could be fined, has been turned into an activity that is legal because the company paid a fee for the permission to pollute or destroy more than the law allows. Communities affected by the extra pollution cannot take the company to court anymore for polluting or destroying more nature than the law allows, because the law itself has given the company the permission to exceed the legal limit - for the payment of a fee in the form of PES offsets.

What is being traded in 'Ecosystem Service' Markets?

When a bank or a broker or a company trades grain or oil or cotton on financial markets, they assume that a certain volume of a very clearly defined quality of the commodity they are trading - grain, coffee, cotton, oil, etc. - exists, at the time of the trade or in future, somewhere in a warehouse or a field or an oil tanker. What they trade are paper or electronic placeholders of a measurable quantity and clearly defined quality of the commodity.

In the case of 'environmental services', it is also not the 'service' itself that is traded, but a certificate that represents a guarantee that the 'service' exists in a certain place, quantity and quality. This certificate is often referred to as 'offset credit'. But 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. And the more complex the market, the more assurances the buyers want before they trust the original promise about the quality and the quantity of the trade. They cannot easily 'look into the horse's mouth' so they need some other way to make sure that they don't buy a certificate that gets them rotten apples when they thought the certificate was for fresh oranges. Without such trust in the promise about the quality and quantity of the product a commodities market would not function well. That is why globally traded commodities, in order to be tradable, must be divisible into such units for which quantity and quality can be reliably determined. 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' this is even more complicated than with established commodities: What is traded is not really the 'service' - which itself is already poorly defined (what exactly *is* an ecosystem service?) - but a certificate that holds the promise to keep the 'service' in a certain condition over a certain period of time.

Before an 'environmental service' - or certificates that represent the 'service' - can therefore be traded on an 'environmental services' market, the 'service' has to be defined in a way that makes it possible to compare one package of the 'service' from one place with another package of the same 'service' from another place. On the basis of these definitions and measurements, the trader must be able to verify that the two packages offer the same commodity. S/he also must be able to verify and judge the quality (and quantity) of the 'service' based on the definitions and measurements - in order to prevent that s/he pays for what s/he thinks will be 10 tonnes of fresh apples but instead is a certificate that represents 5 tonnes of rotten apples.

Already for commodities like coffee or oil or cotton or corn, it is not that simple to define the commodities as reliably as the financial traders want. Trying to achieve this definition and then being able to measure the 'service' in such precise and verifiable ways as is requested for commodity markets has been impossible so far for all 'environmental services'. Still, some of them, like carbon dioxide, are traded on advanced financial markets. The main market for offset certificates of carbon dioxide was until recently the Clean Development Mechanism (CDM). The CDM is part of the Kyoto Protocol, an international climate treaty (see WRM bulletin 172⁸ and website Carbon Trade Watch⁹). Industrialised countries with an emission reduction target under this treaty could use CDM offset certificates to claim that they had reduced emissions as promised in the Kyoto Protocol. When demand for such CDM offset certificates fell because industrialised countries did not commit to big reductions of greenhouse gases after 2012, the price for CDM certificates collapsed.

⁸ <http://wrm.org.uy/bulletins/issue-172/>

⁹ www.carbontradewatch.org

In addition, numerous reports show that many certificates - probably the majority of CDM offset certificates that are sold - do not really represent extra reductions. This shows that it is an untrustworthy, and therefore a risky market. Such a market is possible only because it was created by governments who have decided to accept carbon credits as representing a verifiable reduction of one tonne of CO₂ equivalent even if they cannot really verify that this extra tonne of CO₂ has been reduced (because 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 the left-over apple pulp or an empty bag labelled 'apples' would all be considered equivalent to each other, and tradable as if they were the same.

The verifiability of biodiversity offset credits is equally dubious.¹⁰ For example, in a 'bat biodiversity offset', generally, the bats and their habitat are not bought and then moved to the place where the buyer of the certificate destroys bat habitat. What is traded is a placeholder, the offset certificate. The certificate represents a guarantee that the bats and the habitat which the seller is offering are equivalent in quantity and quality to the bats and the habitat that the buyer of the certificate will destroy. The buyer has to have the guarantee that when s/he shows the certificate to the environmental authority, they will accept it as equivalent to the habitat and bats destroyed. When the 'biodiversity offset' is bought and sold several times before it is eventually used to 'nullify' destruction of biodiversity, all the traders who just bought and sold the 'offset' credit to make a profit also had to have the trust that the certificate would be accepted as equivalent because they were deciding how much to pay for the certificate based on that trust that the certificate would be accepted as valid.

The Chicago Board of Trade is one of the most important institutions for the trading of food commodities. Of all the different kinds of corn that exist in the world, it only allows the trade of yellow corn. But not just any yellow corn. It has defined exactly what is meant by 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 the definition above is then adjusted depending on the quality ('grade') of the yellow corn. There is very little difference between the different grades (see report by the consultancy firm 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 Munden Project* wrote in a report that analysed whether REDD carbon credits would be feasible for trading on a market comparable with the standard requirements of commodity trading. They concluded that "*Forest carbon trading is unworkable as currently constructed.*" Nonetheless, the REDD lobby continues to insist that trading forest carbon credits is possible, will reduce deforestation and provide benefits for forest dependent communities.

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

Source: The Munden Project (2011): REDD and Forest Carbon: Market-Based Critique and

The carbon market has shown that trades can continue to be made on the market as long as the environmental authority accepts the certificate even if they are unable to verify that the certificate really represents the guarantee that the law or regulation says it must. But when that happens, nature loses. From an environmental perspective, the certificate represents a guarantee

¹⁰ 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.

that the owner of the land that houses the bats and their habitat (a) had the proven intention to not maintain the quality of the habitat and (b) will protect the land in at least as good a condition as it was when the credit was sold. The land owner receiving the 'environmental service' payment for the bat and its habitat sells the permission for someone else to destroy bats and their habitat, and makes the promise to 'nullify' the damage the buyer will do to bat habitat. If the land owner does not maintain the bat habitat for as long as the habitat in the other location remains damaged, both the original nature and the offset replacement will have been lost, possibly irreplaceably. That is the gamble promoters of 'ecosystem service' markets are willing to take.

In addition to the increased ecological and social damage that will result from 'offset' PES, the carbon market has already shown that trading such 'imaginary commodities' also opens the door for fraud. Peter Younger of the Interpol, the international police organization, stated in relation to 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."*¹¹

From simple trade to complex financial market transaction

The PES schemes described in III and IV are to using financial markets to varying degrees to set the price for 'environmental services'. Some trades are only single transactions between seller and buyer while others involve additional financial brokers, and financial trading platforms. The bigger the role of trading on financial markets, the more paperwork – produced or verified by specialist consultants – is needed to demonstrate that the certificates representing different units of 'environmental service' are comparable in quality and quantity. And the bigger the role of trading on financial markets, the less control communities have over the price offered to them and the restrictions and monitoring of land use that is linked with the payments.

(1) **Single Transaction.** Most 'offset' PES transactions still consist of one single transaction between a seller who has polluted or destroyed less than the legal limit allows and the buyer who needs units of 'environmental service' to nullify pollution or destruction above a legal limit. Only a rudimentary environmental market is needed for the 'environmental service' and the offset units are usually bought directly for final use, without further trading. The price is mainly established as a negotiation between seller and the final user of the offset.

(2) **Biodiversity Banks and Environmental Exchanges.** Increasingly offset PES schemes use trading platforms, 'species banks', or 'habitat banks' that act as market makers and intermediaries between buyers and sellers. The price becomes more dependent on the trading that takes place on the trading platform, and the control diminishes for the original seller or final buyer to set the price. The trading in 'forest restoration credits' that were created by the 2012 revision of the Brazilian Forest Code, for example, uses the Bolsa Verde do Rio de Janeiro (BVRio). BVRio is a trading platform in Rio de Janeiro where interested buyers and sellers can register and offer or buy these credits called CRA (Cota de Reserva Ambiental). Each CRA represents one hectare of protected forest as required under the Forest Code (see below for more detail). The same unit of 'environmental service', in this case called CRA, may be bought and sold several times before it is bought by the landowner or company who needs the unit to nullify deforestation above the legal limit.

¹¹ <http://www.redd-monitor.org/2010/10/01/joining-the-little-redd-dots-stories-from-the-world-of-carbon-trading/>

Because the price of the units is the main interest for the buyers and speculators on environmental trading platforms like the BVRio, it becomes more important that the certificates for each package of 'ecosystem service' are comparable in quality and quantity to other units offered. There is also increased demand to provide evidence that the units will be accepted as 'equivalent' or as sufficiently similar to the pollutant or to the nature that is destroyed by environmental authorities. 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 been turned into a commodity that can be traded on financial exchanges.

In addition to companies or land owners who need offset certificates to 'nullify' pollution or destruction of nature, speculators, brokers, specialist trading firms can also buy and sell the 'environmental service' units. A market has been created where those who sold the units originally - communities or land owners with more of the specific 'environmental service' than is needed under the law - are not involved anymore except for as providers of the commodity that others are trading and profiting from.

(3) Financial traders sets the price. In the most complex PES offset trading schemes, the 'offset' is traded in a market where the certificates that are traded represent 'services' that are even less comparable. Examples are the trading of emission permits and offset certificates linked to climate treaties like the Kyoto Protocol, the EU Emissions Trading Scheme or the California carbon market (for more detail on how these pollution markets function, see for example the publications *Designed to Fail* or *Carbon Trading. How it works and why it fails*¹²).

In those schemes, industrialised countries (under the Kyoto Protocol) or companies (in the EU ETS and California carbon market) are legally obliged to cover each of their CO_{2e} emissions with a pollution permit. These pollution permits are handed out or auctioned off by governments in the case of the EU ETS or the California carbon market. In the case of the Kyoto Protocol, their gratis distribution to industrialised countries was decided by the UN climate conference in 1997 that adopted the Kyoto Protocol. If the companies (or countries) run out of such permits and other companies (or countries) are not offering any of theirs at attractive prices, the carbon market offers another alternative to shutting down production: offset credits. In other words, paying someone who is not obliged to keep their emissions below a certain limit to reduce them voluntarily. The voluntary reduction is then offered to the company or country that would otherwise face shut-down of production because they have reached their own pollution limit. The best-known carbon offset market is the Clean Development Mechanism. The CO₂ permit which a government agency provides to the company as the right to emit one tonne of CO₂ is the paper placeholder that represents one tonne of CO₂ from the total volume of CO₂ the government received or created, in this case through the international climate treaty, the Kyoto Protocol. The CO₂ traded as offset credit also has to be shown to come from an accepted stock of carbon dioxide that is available for trade. The offset credit therefore has to be shown to represent one *extra* tonne of CO₂ that without the payment from the 'offset' credit would have been released into the atmosphere. The reduction has to be extra, because it justifies an extra - or additional - emission that would otherwise not have been allowed because the company had already reached their limit. The box 'Offset projects and the claim of knowing what would have happened' explains why it is not possible to really verify that 'offset' credits have reduced extra emissions or saved forest that otherwise would have been cut down - and why 'offset' credits will lead to more overall pollution or destruction as a result.

¹² <http://www.fern.org/designedtofail>
<http://www.carbontradewatch.org/publications/carbon-trading-how-it-works-and-why-it-fails.html>

Despite this fundamental difference, offset certificates are considered the same as the CO₂ permits in the carbon market. In 'environmental services' markets of this type, speculative trading by specialist trading firms or banks that do not have a legal requirement to reduce emissions is also more common. This speculative trading mainly determines the price of the 'environmental service' certificates.

If the EU Emissions Trading Scheme, the Kyoto Protocol or the California carbon market would allow companies to buy REDD offset credits, this would mean that the agency that regulates these carbon markets considers the REDD credit to have the same effect on climate change than a credit that represents a tonne of carbon saved by producing electricity from solar panels instead of from burning coal. They would have to believe that the carbon dioxide represented by the REDD credit - i.e. a credit representing one tonne of carbon dioxide saved from not cutting down a forest or planting trees on a hectare of land - will be stored in the forest for as long as the extra coal that the company burns affects the climate. The effort and paperwork needed to try and show that REDD credits and solar panel credits represent the same 'ecosystem service' is enormous (and yet, ultimately never verifiable!). A seller who wants to sell a REDD offset certificate needs to prove that (a) this REDD credit fulfils the rules that make his REDD credit equivalent to the other carbon credits that are also traded in the same market as the same 'ecosystem service' carbon dioxide - and (b) that the quality and quantity of her/ his REDD credits is comparable with others on offer and (c) that the quality and existence of each can be monitored over long periods of time. This paperwork costs, and it requires technical consultants. As a result, 'transaction costs' of the PES project for REDD increase, and these costs are added to the costs of the project. As a result little if any profit or funding for activities that benefit the community remains once these transaction costs for measuring and verifying the 'environmental service' have been covered. Yet, the extra paperwork does not resolve the impossibility of *knowing* 'what would have happened to the forest without the payment', and thus, the increase in cost does not really make the claim that *extra* emissions have been reduced by the offset project any more credible. In other words, the extra cost reduces the money actually available for action that could reduce emissions or halt deforestation because more money is needed for consultants to produce and verify more paperwork.

Offset projects and the claim to impossible knowledge

Offset credits – whether for carbon dioxide emissions, or biodiversity destruction or in lieu of restoring illegally cleared forest – allow the holder of the offset certificate to claim that the effect of his pollution or destruction of nature has been nullified. In order to justify such a claim, it is not enough to just reduce emissions or save some forest. The reduction or protection has to be ***additional*** to any reductions or forest protection that was planned already anyways. If there are no extra reductions or if the forest that is saved was under no threat of being cut down, the holder of the offset certificate claiming that his or her negative impact on the environment has been offset has no basis to make the claim. In other words, if the seller of the carbon offset credit was planning to reduce emissions anyways or if there was no threat that the forest would be cut down, no extra emissions or forest are saved that could be used to justify someone else claiming the effect of their emissions had been nullified. *Calculating how many credits an offset project can sell therefore depends on knowing what would have happened.*

The inconvenient truth, however, is that *what would have happened* is of course always a matter of speculation – because it didn't happen after all. Nonetheless, every offset project needs to present a story of exactly how many tonnes of CO₂ *would have been released* in the hypothetical

future without the carbon offset project; or how many hectares of forest *would have been* lost if the REDD project had not existed (in that case they also need to somehow convert hectares of forest not cut down into tonnes of CO₂ saved – which involves yet more guess work). And the agencies that approve the offset credit need to verify that the story of what the offset project papers say *would have happened* is correct before the offset credit can be traded - they have to verify *the story that didn't happen*. It is therefore clear that the calculation of how many emissions an offset project really reduces can always only be a guess, no matter how accurate emission measurements may be. Up to now, the measurements are not very accurate either, especially for CO₂ emissions from forests. But even if they were, it would not make the offset calculation any more verifiable: the calculation would still be made on the basis of an *unverifiable story of how many tonnes of CO_{2e} would have been released* if the offset project had not been implemented.

That is why offset credits have been called “*an imaginary commodity based on subtracting what you hope will happen from what you claim would have happened.*”¹³

Spot the differences

The most fundamental difference between ‘offset’ PES schemes as described in III and IV and the PES schemes described in I and II is, that in ‘offset’ PES schemes, *the payment buys the permission to pollute or destroy nature above a legal limit*. This fundamentally changes the nature and characteristics of the payment mechanism. These changes in turn have far-reaching consequences for communities participating in or affected by offset PES schemes. Instead of the promised win-win agreements, these offset PES schemes usually turn into ‘big loss’ agreements for part if not all of the community members in the location where the offset units are produced. They *always* increase the ecological and social damage for the community living in or near the location where the company uses the offset credit to pollute more or destroy more nature. At the same time, the affected community at that end of the offset transaction does not receive any of the offset payment even though they are suffering from excess levels of pollution or environmental destruction. *Increased environmental injustice in pollution hotspots is therefore an inherent consequence of offset schemes*. More damage to the communities accepting the offset payment is also more likely as a result of the characteristics of ‘offset’ payments - rather than as a result of poor project management (see examples below).

PES schemes that involve the trade in ‘environmental services’ always require territorial control. The “owner” of the ‘service’ units and his/her intermediaries acquire the right to monitor the quality and existence of the commodity they paid for, to ensure that the ‘environmental service’ is at all times delivered in full accordance with the terms of the contract. This risks undermining struggles for the recognition and guarantee of collective land rights of communities who live in and depend on the forests. Because 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, many communities whose rights to their territory are not recognised or under dispute 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. And even if they manage to stay and to benefit in some way initially, the buyer of the ‘environmental service’ credit will have the right to enter the area for inspections and monitoring to verify that the ‘service’ in question is being preserved and maintained. This also is a form of control that violates these communities’ rights over their territories.

¹³ Dan Welch in “The inconvenient truth about the carbon offset industry. The Guardian. June 2007.
<http://www.theguardian.com/environment/2007/jun/16/climatechange.climatechange>

Another fundamental change with this type of offset PES is that it represents a paradigmatic change for how the law treats polluting or destroying nature above a legal limit. Legislation where pollution or destruction above the legal limit was an offense punishable through fines is being turned into legislation that sanctions pollution or destruction of nature above the legal limit against payment of a fee. Those who can afford the fee can buy the right to pollute above the legal limit or they can buy the right to destroy nature that the law is said to protect: judgements of right and wrong are transformed into prices. In some cases, like the ‘forest restoration credits’ under the Brazilian Forest Code (see below), prior wrongs are also legitimised. Where offsets are traded in voluntary markets, no change in law is involved but the individuals of companies are able to justify pollution or destruction at rates that are considered a ‘moral offense’ or to continue ‘luxury consumption’ with a ‘cleaner conscience.’

As the boxes *‘What is being traded in Ecosystem Service Markets?’* and *‘Offset projects and the claim to impossible knowledge’* show, measuring more does not increase comparability of the products that are traded if what needs to be measured cannot be measured and what can be measured is not relevant. *And that exactly is the problem with offset measurements.* Even better measurement methodologies and more accurate figures do not make what is called ‘ecosystem service’ offset commodities any more comparable than they are with less measurement – no amount of measuring tree heights and mapping tree species will resolve the fact that *offset credits are an imaginary commodity based on subtracting what you hope will happen from what you claim would have happened.*¹⁴ Yet, the governments of Norway, Germany and the UK, the World Bank and conservation NGOS TNC, CI and WWF and others keep spending millions of euros to continue to measure the wrong things, just better and with improved and more expensive measurement techniques. And as most of these activities are funded via public grants, it also means less funding available for action that has actually shown to reduce destruction of nature. It means less funding, for example, for the demarcation of indigenous lands, the recognition of forest peoples’ customary rights or supporting communities to strengthen their subsistence economies through access to local markets for regional forest products.

Offset PES schemes also require contracts that are very different from the contracts used in PES schemes that do not involve offsets. Only in the case of ‘offset’ PES schemes do the contracts have to include legal obligations that last beyond the period over which payments are received. In other words, a community signing an offset PES contract may have the obligation to maintain the same quality of the ‘ecosystem service’ as at the time of sale long after payments have stopped (see the section below about the research into REDD offset contracts by CENSAT – Friends of the Earth Colombia and the links to documentation of REDD offset project impacts on communities at the end of the briefing). In the case where the offset payment is made so a company can demonstrate that it has nullified the pollution or destruction of nature that its operations have caused, the ‘ecosystem service’ used to claim that the damage has been offset would have to continue to exist with at least the same quality until the ‘ecosystem service’ damaged by the company’s pollution or destruction has recovered. Otherwise nature – and the climate in the case of REDD offsets - loses out. If forest carbon or REDD offsets were used in mandatory carbon trading markets like the Kyoto Protocol, the EU ETS or the California carbon market, the original seller of the offset (the community or land owner or conservation NGO) would have to guarantee that the units of the ‘ecosystem service’ carbon storage remain stored in the forest for the same length of time that the fossil carbon released by the company owning the REDD offset will interfere with the climate – for centuries at least in other words. No offset contract lasts that long, and as a result, nature and the climate lose out by definition, regardless of the quality of the ‘offset’ project.

¹⁴ Dan Welch in “The inconvenient truth about the carbon offset industry. The Guardian. June 2007.
<http://www.theguardian.com/environment/2007/jun/16/climatechange.climatechange>

Why these differences matter

The descriptions above show important differences among schemes that are all referred to as PES. First, the consequences and risks for communities are very different. Second, the benefit that the one who pays gets in return for their payment is different. In the case of the communities of Kuhan and Ooch (see box above), a negotiation between two parties with comparable negotiating power leads to a joint agreement in which one community pays a certain amount of money for the other to change a certain land use practise for a defined period of time. They also jointly work to restore the river banks that were important for erosion control, and thus improved the water flow in the river they both depended on. 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 the recovery of the flow of water through the solution of an environmental problem impacting one of the two villages. In the case 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 on – and where payment to maintain the watershed was the cheaper option than building a water treatment plant. It is likely that these types of mutual arrangement at the local level are nothing new in the history of human settlements and their use of nature.

At the other end of the spectrum, nature's capacity to store carbon and sequester carbon dioxide, to filter water or to provide a home for a complex web of life has been abstracted into 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 use of these certificates, or offset credits, is the permission to destroy a unit of the same 'service' elsewhere. Or that the environmental impact of the unit of the same 'service' that was destroyed elsewhere can be considered to have been nullified. For this to be possible, the 'ecosystem service' units from different places have to be comparable; lawyers, traders and government agencies have to recognise units of the same 'service' but from different places as equivalent. Some PES offset schemes go even further. They come up with calculations so units that fit the same 'ecosystem service' definition but have different quality – i.e. they are not really equivalent - can be traded as if they were of the same quality. For example, in carbon markets like the Clean Development Mechanism, the unit that is traded is one tonne of carbon dioxide *equivalent* – CO_2e . The equivalent means that the unit can come not only from reducing emissions of carbon dioxide – CO_2 ; it could also come from reducing emissions of any other greenhouse gas – methane for example. But because methane has a different effect on the climate than CO_2 (other differences not directly related to the greenhouse effect are not even considered), scientists decided that they would compare the effect of the different greenhouse gases on the climate over 100 years (if they had chosen a different period of time, the numbers would have been different). For this comparison they developed a formula that the UN adopted and which means that for the carbon markets, reducing 1 unit of methane is the same as reducing 25 units of CO_2 . Once these calculations were approved, methane units could be traded for CO_2 units. Some biodiversity offset programme suggests that e.g. 1 hectare of 'high quality bat habitat' can be traded as equivalent to a certain number of 1-hectare units of 'medium quality bat habitat'. Once the calculations are approved for biodiversity, 'high quality' habitat can be destroyed if someone promises to protect a larger area of 'medium quality' habitat of the same type somewhere else (see the example below with the argument by the former UK Secretary for the Environment who claims that planting a million young trees somewhere can 'offset' destruction of a 400 year old woodland).

In the even more advanced forms of such PES offset schemes, the ‘ecosystem service’ certificate becomes more integrated into financial markets. The ‘ecosystem service’ can be used as a financial asset, and speculators can bet on their future value. They can also place 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 sell this option to buy to someone else for a higher price than they paid for, and make a profit from this speculation. They can buy or sell large quantities of certificates at a low price and bet on the price going up or down through the ‘scarcity’ or ‘flood’ they have created, and then sell the units at a later stage at a profit. Even if communities are not directly selling the certificates on those 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 be any more beneficial to communities than world markets of rubber, timber, coffee, cocoa, cotton, etc. have been. Commenting on the carbon market, Jack Cogen from Natsource LLC, a financial services and trading company that in 2007 was one of the world's largest purchaser of carbon credits it then sold on to companies, confirmed this: *“The carbon market doesn’t care about sustainable development. All it cares about is the carbon price.”*¹⁵

Key actors promoting trading in “ecosystem services”

Multilateral institutions

Not for the first time, the **World Bank** is among those spearheading a trend that poses a great threat to the lives and livelihoods of forest dependent communities. The World Bank is one of the strongest promoters of trading of ‘ecosystem services’, providing money for projects and schemes that advance this new form of financial speculation with nature. One likely reason why the World Bank favours these offset PES initiatives is that they help greenwash the destruction of nature caused by World Bank-financed mining, infrastructure, logging or hydropower projects. In a project in the Democratic Republic of Congo, for example, a World Bank loan is supporting the country to become 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 which would come in part from the extractive industry and plantation operations, which the World Bank is also promoting in the DRC.¹⁶

In addition to financing specific programmes, in 2010, the World Bank launched an initiative called *“Wealth Accounting and the Valuation of Ecosystem Services”*¹⁷, or WAVES, *“a 5-year global program to implement natural accounting in a critical mass of countries.”* And the World Bank explains that this is important because *“Natural capital is a critical asset, especially for less developed countries.”*¹⁸ WAVES is 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.

¹⁵ 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.

¹⁶ Sian Sullivan of the Third World Network

<http://documents.worldbank.org/curated/en/2011/06/14597637/congo-republic-forestry-economic-diversification-project>

¹⁷ <http://www.wavespartnership.org>

¹⁸ [www.unep.org/greeneconomy/Portals/88/documents/INDICATORS%20PPT/d3s1%20Marianne%20Fay%20Wealth%20Accounting%20and%20Valuation%20of%20Ecosystem%20Services%20\(WAVES\)%20A%20Global%20Partnership.pdf](http://www.unep.org/greeneconomy/Portals/88/documents/INDICATORS%20PPT/d3s1%20Marianne%20Fay%20Wealth%20Accounting%20and%20Valuation%20of%20Ecosystem%20Services%20(WAVES)%20A%20Global%20Partnership.pdf)

Conservation NGOs are also involved. In Madagascar, for example, Conservation International (CI) is conducting a pilot study¹⁹ for WAVES.

And 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 Africa's history. The project passed IFC guidelines despite the destruction of the habitat for endangered chimpanzees because the construction will involve "offset" promises of protection of habitat elsewhere.²⁰

The **World Business Council for Sustainable Development (WBCSD)**, a major lobby group which represents big business interests including Syngenta, Rio Tinto and Holcim at the UN, has been a particularly enthusiastic advocate of PES. 29 WBCSD member companies developed "*a vision of a world well on the way to sustainability by 2050*".²¹ The introduction to the Vision 2050 document talks about the changes business needs to make to get 'on the way to sustainability' and states that "*It emerged 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 business cash in on "*the specific opportunities that they [ecosystem services] present in business terms.*"²²

Multinational corporations

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.*"²³ In March 2013, BSR published a report called "*Private Sector Uptake of Ecosystem Services Concepts and Frameworks.*"²⁴ The report not only lists the activities of 35 corporations that are engaged in PES offset and nature valuation initiatives but 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; The Nature Conservancy is listed as partner for Dow Chemical, Shell and Walt Disney Company; BHP Billiton mention Conservation International as a partner in their PES offset programmes. Other conservation NGOs mentioned include WWF, Flora Fauna International (Anglo American, British American Tobacco) and the World Resources Institute (WRI).

Other examples of transnational corporations using PES offsets include Olam, the food corporation that has generated conflict with communities over expansion of oil palm plantations in Gabon (see WRM bulletin 180²⁵). In Vietnam, the company has a CDM project and in the Republic of Congo it is 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.*"²⁶

Rio Tinto states in their report on the company's PES project in Mongolia (see box), that "*the potential for land-use conflict*" is becoming an "*increasingly significant issue for Rio Tinto*" and other corporations, even at the licensing stage. As a result, they look to biodiversity and other PES offset schemes to help the company "*achieve the goal of net positive impact, while meeting legal requirements and maximising conservation gains.*"

¹⁹ <http://blog.conservation.org/2012/01/making-waves-in-madagascar-putting-nature-into-the-equation/#sthash.tjGzyVOL.dpuf>

²⁰ http://www.brettonwoodsproject.org/wp-content/uploads/2013/12/Simandou-Questions-and-Considerations_finaldoc.pdf

²¹ <http://www.wbcd.org/pages/edocument/edocumentdetails.aspx?id=219&nosearchcontextkey=true>

²² WBCSD Guide to Corporate Ecosystem Valuation. Page 11, EN version.

<http://www.wbcd.org/pages/edocument/edocumentdetails.aspx?id=104&nosearchcontextkey=true>

²³ <http://www.bsr.org/en/about/bsr>

²⁴ http://www.bsr.org/reports/BSR_Private_Sector_Uptake_Ecosystem_Services.pdf

²⁵ <http://wrn.org.uy/articles-from-the-wrm-bulletin/section3/gabon-resisting-olam-land-grabbing-for-oil-palm-plantations/>

²⁶ http://olam.wpengine.netdna-cdn.com/wp-content/uploads/2012/10/CRS-2012-Report_Olam.pdf

A report from Columbia highlights that in addition to the land taken for the mining and infrastructure, such offset schemes will also occupy large areas of land. Columbian 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” and 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.”²⁷

Mining Companies piloting offset PES schemes

Rio Tinto in Oyu Tolgiu, Mongolia²⁸

Rio Tinto is listed as one of the ‘road testers’²⁹ of the WBCSD *Guide to Corporate Ecosystem Valuation*. What follows are excerpts from its case study report about the use of biodiversity offsets at its Oyu Tolgiu mine in Mongolia.³⁰

*“Rio Tinto needs to **demonstrate to government and others** that it has a process that allows for the pursuit of economic development through resource extraction, while conserving, and even promoting conservation value in the regions in which it has been given license to operate.”*

*“The growing focus on exploration in developing countries means that the **potential for land-use conflict** will become an increasingly significant 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 – to 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.”*

“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;”

Arcelor Mittal in Liberia

Like Rio Tinto, Arcelor Mittal also presented a case study in the WBCSD biodiversity offset initiative. The following excerpt from Arcelor Mittal’s pilot biodiversity offset case study shows what motivated the corporation to participate.³¹

“ArcelorMittal assembled a large team of specialists and partners from Liberia [...] including the Liberian Forestry Development Authority, Conservation International, Fauna and Flora International, Afrique Nature, Sylvatrop, Wild Chimpanzee Foundation, and Action pour la

²⁷ www.ecosystemmarketplace.com/pages/dynamic/article.page.php?page_id=9856§ion=news_articles&eod=1

²⁸ See NGO comments on the mining project: <http://en.minewatch.mn/wp-content/uploads/2012/11/CSO-submission-to-EFIC.pdf>

²⁹ <http://www.wbcd.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.

³⁰ WBCSD (2012): Biodiversity and ecosystem services scaling up business solutions. Company case studies that help achieve global biodiversity targets. <http://www.wbcd.org/Pages/EDocument/EDocumentDetails.aspx?ID=14923&NoSearchContextKey=true>

³¹ WBCSD (2012): Biodiversity and ecosystem services scaling up business solutions. Company case studies that help achieve global biodiversity targets. <http://www.wbcd.org/Pages/EDocument/EDocumentDetails.aspx?ID=14923&NoSearchContextKey=true>

*Conservation de la Biodiversité en Côte d'Ivoire, to study the current state of biodiversity in the region. [...]. The group also helped ArcelorMittal **design its offset program to compensate for the land lost to mining.** ... commitment by ArcelorMittal to an annual budget of at least half a million dollars per year, during its four-year mining start-up phase, to be dedicated entirely to the biodiversity conservation program.... **develop activities that enable the communities using the forests to derive benefits from conservation, rather than from the traditional and sometimes more destructive use of forests. Support is being given to raising the awareness of forest values among the communities** These actions towards biodiversity conservation are helping the company demonstrate to government authorities that it puts Liberia's future and its development high among its priorities. ArcelorMittal's support for the biodiversity conservation program is also a key part of the compensation process for local communities that rely on the existing ecosystems for a number of services that it provides. ArcelorMittal has long-term mining plans for the area. ..."*

East Asia Minerals in Aceh, Indonesia³²

In May 2011, the Canadian mining company East Asia Minerals announced that it was buying 50% of Carbon Conservation, an Australian company that developed – with support from Flora Fauna International - the controversial Ulu Masen REDD offset project in Aceh, Indonesia. At the time, East Asia Minerals was clear about its motivations:

*"Through the acquisition of a 50% equity interest in [Carbon Conservation], the Company will develop a 'green' mining project which will use carbon and biodiversity offsets and the latest in environmentally friendly mining practices.[...] the Company will participate in developing a "green" brand for its Miwah project which will potentially allow it to command a premium for its product in the market as well as to potentially facilitate a smoother process for approval of, and support for, mining permits."*³³

Indonesian NGO Greenomics Indonesia questioned at the time whether Carbon Conservation had a conflict of interest with the involvement of East Asia Minerals. In a press release, Greenomics Indonesia states that: *"On the one hand, East Asia Minerals Corporation has a commercial interest in gold mining in Aceh's forests, the Miwah project, while on the other hand Carbon Conservation has been granted exclusive rights by the Aceh Governor to sell and market carbon credits related to more than 700,000 hectares of Aceh forest located in the Ulu Masen forest block. Why are Aceh's forests being used as an asset by Carbon Conservation to obtain funds from a share transaction with East Asia Minerals Corporation? This clearly involves a conflict of interest. Carbon Conservation has misused the agreement it entered into with the Government of Aceh. This share transaction must be rejected outright."*³⁴

Just like mining and real estate companies have a particular interest in biodiversity offsets, airlines, car manufacturers and entertainment companies are among the most frequent buyers of carbon offset certificates. Conservation NGOs like Conservation International play an important role as intermediaries, project managers or brokers of contracts for these carbon offset trades.

In Peru, for example, Latin America's largest airline Latam bought 7,000 carbon offsets from a tree plantation project run by a company called Bosques Amazonicos in Peru's eastern province of Ucayali. In the case of Latam, the company said it would use the credits to 'offset' the impact

³² <http://www.redd-monitor.org/2011/05/05/mining-company-to-buy-50-of-carbon-conservation-will-redd-help-greenwash-mining/>

³³ http://www.eaminerals.com/s/NewsReleases.asp?ReportID=454841&_Type=News-Releases&_Title=East-Asia-Minerals-Announces-Acquisition-of-50-of-Carbon-Conservation-Pty

³⁴ http://www.redd-monitor.org/wordpress/wp-content/uploads/2011/05/11-05-04_Greenomics.pdf

from the quickly increasing number of flights until 2020. Entertainment company Walt Disney bought 437,000 carbon offset credits from the Alto Mayo Initiative, a project in the northern San Martin province that is funded by the Peruvian government and Conservation International (CI).³⁵ Walt Disney also bought carbon credits from a REDD PES project in the DRC, also involving CI. The WRM report *Democratic Republic of Congo. Conservation International REDD pilot project: a different kind of Disney production documents the impact of the project on local communities*.³⁶

In search of new assets - 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."*³⁷ Because industrial production is surpassing the capacity of world markets to purchase and consume its products, a crisis of 'over-accumulation' of capital is looming. Capital needs new assets to invest in. Over time, financial and investment sectors have overtaken industrial production sectors in their importance for capital accumulation and the global economy. The interest of financial capital in nature is linked to this over-accumulation problem of capital(ism), and the pressure to identify new, if necessary, fictitious, assets. Turning nature into 'ecosystem services' is how economists are hoping to create one new type of asset.

Economist Willem Buiter of Citigroup, a transnational financial services group based in the U.S., states it very clearly: *"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."*³⁸

Conservation NGOs

As part of the World Bank's WAVES (Wealth Accounting and the Valuation of Ecosystem Services) initiative, Conservation International (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,"*³⁹ CI write on their blog. While CI encourages local communities to stop environmentally harmful practises it aids mining corporations like BHP Billiton greenwash their harmful practises that undermine the local communities' livelihoods that the conservation NGO considers to be based on 'harmful practises'. In future those local livelihoods will be threatened not just 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.

³⁵ <https://vcsprojectdatabase2.apx.com/myModule/Interactive.asp?Tab=Projects&a=2&i=658&lat=-8.581917&lon=-74.7412663998&bp=1>
<http://www.cotizalia.com/ultima-hora/2013/01/airlines-preve-neutralizar-completo-emisiones-20130130-543863.html>
<http://elcomercio.pe/economia/1549873/noticia-disney-adquirio-us35-millones-bonos-carbono-selva-peruana?ft=grid>

³⁶ <http://worm.org.uy/books-and-briefings/democratic-republic-of-congo-conservation-international-redd-pilot-project-a-different-kind-of-disney-production/>

³⁷ <http://abcnews.go.com/Business/hoarding-hiring-corporations-stockpile-mountain-cash/story?id=10250559>

³⁸ <http://ftalphaville.ft.com/blog/2011/07/21/629881/willem-buiter-thinks-water-will-be-bigger-than-oil/>

³⁹ <http://blog.conservation.org/2012/01/making-waves-in-madagascar-putting-nature-into-the-equation/#sthash.tjGzyVOL.dpuf>

Alongside Conservation International, groups including The Nature Conservancy (TNC), World Wide Fund for Nature, (WWF), the Wildlife Conservation Society (WCS) are involved in many forest carbon and biodiversity offset projects and initiatives where they promote offsetting as a lucrative and business-friendly form of PES. Organisations like the Environmental Defense Fund, while 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 the Rainforest Alliance also joined forces to set up a certification scheme for forest carbon offsets, the Climate, Community & Biodiversity Standard, CCBS;⁴⁰ and CI and WCS provided the Secretariat for the 'Business and Biodiversity Offsets Programme between 2004 and 2008.

"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," Michael Grubb, former Chief Economist at the UK-based Carbon Trust⁴¹ said in 2011 in relation to NGO complaints that the CDM was not contributing to 'Sustainable Development', as the founding document of the CDM said the mechanism should. It is likely that the hopes and promises of conservation NGOs that a market in REDD offsets will benefit forest peoples will be dashed just like promises that the CDM would deliver Sustainable Development went unfulfilled.

Specialist investment funds and market makers

To capitalize on this expected new market in 'ecosystem services', numerous specialized firms have emerged in recent years. Organisations like Ecosystem Marketplace and Canopy Capital provide visibility; carbon credit sellers like the Carbon Neutral Company, Climate Care, the Bolsa Verde do Rio de Janeiro facilitate the sale of offset credits from forest and biodiversity or forest restoration projects; specialist investment funds like Althelia, Terra Global or the Forest Carbon Group help pool private capital that then is available to biodiversity and forest carbon offset companies like Wildlife Works, ERA and others.

Another important market maker is the Business and Biodiversity Offsets Programme (BBOP) of the market-oriented Forest Trends group.⁴² Led by an international collaboration of representatives from companies, financial institutions, governments and NGOs, BBOP has been instrumental in developing principles and standards for biodiversity offsets. Among the NGOs on the BBOP Advisory Group are FFI, CI, TNC, Birdlife International, the World Conservation Society, the Rainforest Alliance and WWF-UK. Among its pilot biodiversity offset PES schemes, BBOP mentions the large-scale Ambatovy nickel and cobalt mine in Madagascar, the retroactive assessment of impacts associated with a now closed Solid Energy coal mine in New Zealand, a proposed Newmont gold mine in Ghana and an Anglo American platinum mine in South Africa.⁴³ Solid Energy, as Rio Tinto in the case study above, cite the interest to maintain their 'social license to operate' as one of the 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*

⁴⁰ <http://www.climate-standards.org/about-ccba/>

⁴¹ The Carbon Trust describes itself as *"a world-leading organisation helping businesses, governments and the public sector to accelerate the move to a sustainable, low carbon economy through carbon reduction, energy-saving strategies and commercialising low carbon technologies."* <http://www.carbontrust.com/>

⁴² http://bbop.forest-trends.org/pages/biodiversity_offsets

⁴³ http://bbop.forest-trends.org/pages/pilot_projects

*Energy to build and enhance its social license to operate.”*⁴⁴ Newmont mention that the company “demonstrated their commitment to a biodiversity offset for the Akyem Project in their November 2008 EIS” [Environmental Impact Assessment], thus hoping that the proposed offsets will help the company obtain the mining license.⁴⁵

Universities and consultancies

Universities, research institutes and consultancies play a crucial role in the process that is turning nature 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’. Yet, the scientific work they do, the preparation of the methodologies, giving academic credibility to dubious calculations, pretending that it is possible to ‘internalise’ external costs to come up with a ‘true cost’ of nature destruction, all of this helps prepare the ground for ecosystem trading. Those that claim that what they do is different from putting a price on nature easily get caught up in contradicting that same claim, even in their own statements, as the following example from the webpage of the UK-based ‘Valuing Nature Network’,⁴⁶ a coalition of universities, research institutes, companies and conservation NGOs, shows.

The ‘How to’ section of the Network website reveals that despite all the fuzzy words about valuation being different from putting a price on nature, the objective is nonetheless “Money”:

*“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. 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.”*

“Where best to invest to protect” means that ‘where it is not best to invest to protect’, corporations can continue to destroy. To develop the methodologies and calculations that allow industry and capital to figure out where these places are is the role that universities, research institutes and consultancies play in the process of financialization of nature.

⁴⁴ http://www.forest-trends.org/documents/files/doc_3124.pdf

⁴⁵ http://www.forest-trends.org/documents/files/doc_3122.pdf

⁴⁶ <http://www.valuing-nature.net/about>

Tracking PES offset failures

Biodiversity offset PES advancing despite track record of failure

Promoters of biodiversity offsets seem to have adopted the World Bank's approach to "Learning by Doing": The learning never seems to be happening and the doing just continues. Nature offsetting programmes have been in existence for decades in Australia, the US and Canada. Their experience is predominantly one of failure. In Canada, for instance, in projects that were meant to offset the loss of fish habitat, researchers found that 63% of projects failed to achieve the stated target of no net loss.⁴⁷ One of the many reports documenting the failures of PES offsetting in the USA even only on ecological grounds is a 2001 report from the National Research Council in the USA. The report contains a whole annex of reports from 1983 to 2000 demonstrating that wetland compensation sites have regularly failed.⁴⁸ And a 2005 report from the USA Government Accountability Office is titled *"Wetlands Protection: Corps of Engineers Does Not Have an Effective Oversight Approach to Ensure that Compensatory Mitigation is Occurring."*⁴⁹ The FERN briefing *Critical review of Biodiversity Offset track record*⁵⁰ includes additional references to studies about the failure of biodiversity offset programmes.

Biodiversity offsets in the UK

In Europe, the UK government is strongly promoting offset PES schemes. The former Environment Secretary Owen Paterson explains the government interest in offset PES: Offsetting *"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."*⁵¹ This interest in 'innovative thinking' by the UK government is likely 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,"* - and many are likely to face strong opposition. Already, examples exist where demands from local community groups to halt construction of luxury housing schemes that destroy ecologically important 'sites of special interest' have been rejected because the real estate company used biodiversity 'offsets' to claim that environmental impacts had been dealt with.⁵² Examples from the UK also show how nature with all its complexity and interconnectedness is reduced to one single component in the government's application of 'innovative thinking': Mr Paterson cited biodiversity offsets in connection with a for-fee motorway as an example for how he sees biodiversity offsets work: *"I think it was 10,000 mature trees [lost] and they planted a million young ones."*⁵³ He used the comparison in connection with a controversial housing development that will destroy a 400 year old woodland: A 400 year-old forest replaced by a plantation of a million young trees, and the former Environment Secretary Paterson considers the environmental impact to be nullified.

⁴⁷ 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.

⁴⁸ http://www.nap.edu/catalog.php?record_id=10134

⁴⁹ <http://www.gao.gov/products/GAO-05-898>

⁵⁰ <http://www.fern.org/sites/fern.org/files/Critical%20review%20of%20biodiversity%20offsets.pdf>

⁵¹ 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

⁵² http://www.northtyneside.gov.uk/pls/portal/NTC_PSCM.PSCM_Web.download?p_ID=534271

⁵³ <http://www.thetimes.co.uk/tto/environment/article3965473.ece>, January 4, 2014

Furthermore, the UK government's Ecosystem Markets Task Force talks of "*harnessing [London] City financial expertise to assess the ways that blended revenue streams and securitisations enhance the return on investment of an environmental bond*,"⁵⁴ and the government is promoting offsetting to accelerate the construction of houses, roads, railway lines and nuclear power plants as a way of making it easier to overcome environmental objections.

Another prominent example of proposed biodiversity offset use in the UK is the expansion of the highly controversial nuclear power plant Hinkley. Researcher Sian Sullivan documents this case connecting the extraction of uranium in Namibia for the generation of nuclear power in the UK. Biodiversity offsets are proposed to nullify environmental harm both at the point of extraction and expansion of uranium mining into a National Park that is home to important archaeological sites and at the point of 'consumption' of uranium in the UK. Sullivan describes how biodiversity offsets are contributing to a 'greenwashing' of both nuclear power and uranium extraction and documents the "*power relations and interests that are thereby supported*."⁵⁵

Biodiversity offsets in France

In the Camargue region in France, 'biodiversity compensation is a new alibi for the concrete promoters', explains Friends of the Earth France. In France, the CDC bank is a major financial player. CDC has bought thousands of hectares of a damaged ecosystem, the Coussoul, bordering the Camargue region in southern France. The Camargue is home to endangered species such the Little Bustard and the Bupreste de Crau (a type of blister beetle). The CDC restoration project on that land seeks company finance for the restoration of this ecosystem in exchange for a compensation certificate that companies can use to greenwash environmental damage of their projects elsewhere. Destruction of an ecosystem is justified through the "restoration" of another area elsewhere, as if the two were interchangeable. Instead of tackling the damage caused by urbanisation and high-speed transport for a few, this compensation "*enables the reduction, in particular, of delays in getting projects accepted by local communities*", acknowledged the French Minister of the Environment at the time. One company has already bought these biodiversity credits, with the promise of compensating for the environmental impacts of a project which is currently opposed by local groups. In the southwest of France, CDC proposed that Alienor, the company behind a controversial new motorway, the Pau-Langon Motorway project (A 65), should use offsets to compensate for the damage that the project would cause, by financing the purchase or the improved management of 1.372 hectares of land elsewhere.⁵⁶

Wildlife Habitat Bank in Malaysia

An American private equity fund managed by New Forests Inc and Equator Environmental LLC and the Sabah Government launched the Malua Wildlife Habitat Conservation Bank in Sabah, Malaysia, to restore and protect 34,000 hectares of forest that had previously been logged. The 'Malua BioBank'⁵⁷ was granted a 50-year licence for conservation rights to the logged-over forest reserve. The Bank split the area up into 100 m² blocks and began to sell "Biodiversity Conservation Certificates". The "asset" under this scheme are those units of "100 m² of rainforest restoration and protection" that are marketed as "Biodiversity Conservation Certificates" to private sector companies operating in extractive and intensive land use sectors in Malaysia or sourcing products from these sectors. According to the bank, the sale of certificates is intended to "*make rainforest rehabilitation and conservation a commercially competitive land use*." It is

⁵⁴ <http://www.defra.gov.uk/ecosystem-markets/files/EMTF-VNN-STUDY-FINAL-REPORT-REV1-14.06.12.pdf>

⁵⁵ 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.

⁵⁶ To find out more: www.nacicca.org

⁵⁷ <http://www.maluabank.com>

projected that the initial US\$ 10 million invested in the rehabilitation of the reserve over the first six years will be recovered through the sale of the certificates, and will also endow a trust fund, the Malua Trust, to finance long-term conservation management over the remaining 44 years of the contract. Any profits from the sale of the biodiversity certificates are to be shared between the Bank and the investor.

Uranium offsets in Namibia

Researcher Sian Sullivan describes how Namibia's central Namib desert has seen a "uranium rush" in recent years.⁵⁸ The French corporation Areva is the uranium supplier for the Hinkley nuclear power plant in the UK mentioned in the case example above. The power plant is run by the French energy corporation EDF. Areva has been a key beneficiary of the uranium 'rush' in Namibia, with its CEO signing an industrial partnership with the Namibian Minister of Mines and Energy in the presence of Namibian President Hifikepunye Pohamba on 5 May 2009. It controls a third of Namibia's three currently operating uranium mines at Trekkopje, a mine poised to become the largest uranium mine in southern Africa and the tenth largest in the world. Uranium mining in Namibia tends to be open-pit, resulting in large pieces of land being dug up. Around the mine, industries linked to uranium processing are being established, including a desalinization plant to provide the massive quantities of water required in the extraction process, and a chemical plant to provide the necessary chemicals for extraction of uranium. These developments will affect the Walvis Bay Wetland, considered the most important coastal wetland in Southern Africa and one of the top three on the African continent. In 2009, the German government funded a Strategic Environmental (Impact) Assessment (SEA) with the intention to develop "*a living example of how mining can contribute to the achievement of sustainable development*" in the 'Namib Uranium Province'. And 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 a contribution for Namibia to "*position itself to capitalise on a 'green' brand of uranium.*"⁵⁹

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 to preserving biodiversity, stocking CO₂ emissions and also helping "*sustainable human development*". However, for villagers living nearby, the reality is quite the opposite: access to land has been restricted and controlled.

Originally presented as an "*environmental solidarity programme*", the HCPF, carried out in Madagascar by GoodPlanet and WWF Madagascar, it aimed mainly to "*advance scientific knowledge of forest carbon.*" In 2010, Air France issued an unequivocal statement that the project was by no means a carbon offset programme. Two and a half years later, the programme has been revealed for what it really is: Air France acknowledges that the project will generate carbon credits - but insists that it will not make any profit from the programme and that all the money will go to local communities. A report and video by Friends of the Earth France⁶⁰ show that this is

⁵⁸ 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.

⁵⁹ 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.

⁶⁰ 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>

also not true. The development of the HCPF takes away forest areas from the local population and risks displacing people who see their means of subsistence jeopardized. So that a small minority of frequent flyers can continue to pollute the planet, 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: forests and land are no longer natural areas that can provide a local livelihood but have become stocks of carbon that must be protected for the airlines to be able to offer 'carbon neutral' flights to their clients. Worse, to keep an eye on what has been declared prohibited land use by the foreign owners of the carbon offset project, a forest police has been set up: its mission is to track down villagers who clear patches of forest so they can grow food to feed themselves. Anybody caught in the act risks a heavy fine. If the individual is unable to pay, they are sent to prison. And as if patrols on the ground were not enough, small aeroplanes fly above the villages to keep a better eye on them.

Forest Restoration Credits in Brazil

In 2012, Brazil adopted a revised Forest Code. The forest legislation retains the requirement that land owners maintain a certain percentage of the forest intact. How much depends on the forest type. In comparison with the previous legislation, the requirements have been reduced along streams for example. The more fundamental change however was that the 2012 revision of the Forest Code requires that land owners who in the past destroyed more land than was allowed restore the land within a certain number of years. Previously, if they had not restored the land, they would risk a fine (though there was little enforcement) and above all, they would risk not being eligible for rural credit lines anymore, thus borrowing money would become more expensive for them. The revised 2012 Forest Code introduced the option that the land owner buys a 'forest restoration credit' (CRA), as an alternative to the land owner restoring the illegally cleared forest on his own land. The credit is sold as promise that someone else somewhere else has protected more of the same type of forest than was necessary under the Forest Code, and therefore has made up for the excess destruction of forest committed by the buyer of the CRA. These CRAs are now traded, among others, on the environmental exchange in Rio de Janeiro, the Bolsa Verde do Rio de Janeiro (BVRio). This enables land owners in places where land prices are high and where destructive practises are lucrative to continue their business-as-usual through buying cheaper offset 'forest restoration credit', including from regions where the threat of deforestation is much lower.

Why the trade in 'environmental services' will increase ecological and socioeconomic injustice

Morgan Robertson explains in *'Measurement and alienation: making a world of ecosystem services'* how the process that turns nature into an 'ecosystem service' resembles and is likely to have similarly profound effects on society as the process of turning human work into wage labour. And Beverly Keene from Jubilee South stated: "*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.*⁶¹ *Are we facing another Enclosure?*" From the Enclosures of 18th century Britain to the land grabbing today, far from respecting the values that local peasant, forest dependent communities and indigenous peoples hold towards the land, assigning an economic value to the part of the web of life we now commonly call 'land' has meant putting a price tag on that part of

⁶¹ 1/3 of all fertile lands worldwide are considered degraded. Annually, we lose an area of fertile land the size of Bulgaria.

nature. The consequence has been expropriation, landlessness and destruction of fertile soils so that maximum short-term profits can be extracted for the few at great long-term cost to the majority of people.

Proponents of 'Payments of Ecosystem Services', and in particular of trade in 'ecosystem services', have yet to explain why things would be different this time, when we have seen the same process run its course at least already twice through human history. Each time, the consequences were more misery for the majority and more profit for the small elite who control the capital accumulated in the previous round of turning a part of nature or human work into a financial asset.

And whilst the process is still in its early stages, the first examples of what 'trading in environmental services' looks like in reality already suffice to say 'no' to more of the same.

Community rights to their territories – from access to use - become even more precarious

Pavan Sukhdev, the former Deutsche Bank economist who co-ordinated the TEEB study, promotes putting an economic value on nature in a 16-minute talk with the title *"Put a value on nature!"* In the talk, he says: *"It is actually the Poor who depend most on these ecosystem services. [...]."*⁶² What he does not mention is that the expansion of capital has meant destruction and negative impacts on community life and the forest on which 'the Poor' depend. This has been the case whenever transnational companies buy or acquire concessions over areas of forest to harvest timber, build a mega dam, establish a monoculture oil palm plantation, extract oil or minerals or build a road. With offset projects and the financialization of nature that the trade in 'ecosystem service' offsets represents, the problems that arise are similar, but they are manifested with an accelerated intensity. New actors who have no visible presence in the area determine the local land use, which means it is not clear who is behind the processes, but they undoubtedly act in very close coordination with big transnational companies and private and state banks, and with the support of the facilities offered by the state through the reformulation of national and international legal and regulatory frameworks.

Offset contracts pose great risk to communities' traditional way of life⁶³

In 2004 / 2005, WRM received information that indigenous and peasant communities who had signed a carbon offset PES contract for a project located on their territories in the Ecuadorian Andes were forced to pay more money to fulfil contract obligations after fires destroyed trees they had planted as 'carbon trees' than they were getting through carbon payments. The joint research with the Ecuadorian organisation Accion Ecologica at the time revealed how risky such

⁶² Sukhdev then compares how much these 'ecosystem services' make up of the GDP of countries like Brazil, India, Indonesia (2-15%, according to Sukhdev) with "how much they are worth to the Poor" in these countries and cities figures from 45-90%. Minute 5:40 http://www.ted.com/talks/pavan_sukhdev_what_s_the_price_of_nature.html

⁶³ This section of the briefing is based on the extensive analysis carried out by CENSAT Agua Viva / Amigos de la Tierra Colombia and WRM's own analysis of contracts that communities engaged in carbon offset projects have signed. The full article describing the CENSAT research has been published under the title '*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. Quotations in this section are, unless indicated otherwise, taken from the CENSAT article cited here. http://www.wrm.org.uy/html/wp-content/uploads/2014/01/Esp_Biodiversidad_12_2013.pdf

carbon contracts can be for communities. It was the first example we encountered, and many have followed since. CENSAT – Friends of the Earth Colombia recently analysed REDD offset project contracts. Their analysis of how these contracts affect communities involved in or affected by such REDD offset projects confirms WRM's observations that overwhelmingly, (a) communities bear more risk than project developers if something goes wrong with the project; they are also the last to receive benefits while the promotional material only talks about the benefits and not about the risks; (b) contracts include restrictions on traditional land use practises for at least some in the community yet often, these restrictions are not fully explained before contracts are signed; (c) small-scale swidden agriculture and traditional practises are described as main causes for deforestation while the real drivers of deforestation or risk to biodiversity are not mentioned; (d) contracts guarantee outsiders like project developers, their managers and technicians and others linked to the marketing of the offset project nearly unrestricted access to the territories in which the offset is located; and (e) surveillance and monitoring measures focus on community use of forests, not large-scale deforestation or biodiversity destruction and often pit community members against each other: among the few jobs offered locally is always the local fiscal or surveillance agent whose role it is to pass information about community use of the forest on to the project developers. Another tendency already made in relation to older PES schemes without offsets is that where communities receive benefits or are offered jobs, these often increase inequalities within the community with benefits going primarily to local elites and restrictions applying predominantly to marginalised community members. This is also true in the case of REDD offsets.

CENSAT say that many REDD contracts they assessed were full of *“words written with the intention of not being understood, not being fulfilled”*, an assessment that corresponds to WRM's impression of REDD offset contracts that we have come across over the years. What is more, many times the obligations that communities or families enter into are not clearly explained or described in ambiguous terms that can easily be misinterpreted. Seeking outside advice on such complicated and ambiguous legal documents is complicated by the fact that almost all REDD contracts that CENSAT analysed contained strict confidentiality clauses.

CENSAT concludes its research with the call to *“not accept or sign contracts for REDD projects, as a precaution. Not signing is the only way to avoid the risks and conflicts that these REDD conservation projects can create.”*

Profiting from destruction

Trade in 'ecosystem services' needs destruction to continue because without destruction there is nothing to 'offset'

Trade in 'environmental services' does not attempt to change the current model of production and consumption which is the root cause of the multiple crises we currently confront, including the gradual destruction of forests around the world. Instead, trade in 'ecosystem services' goes hand in hand with the 'green economy'. Both are based on the assumption that limitless growth is possible on a finite planet, that the issue is just to organise that growth better, to make it 'green', to offset the damage in one place and hope that the ecosystem in the other place will grow back fast enough to be ready in time for the next round of offsets. As Rio Tinto noted, *"there is potential for land-use conflict to become an increasingly significant issue,"*⁶⁴ not just for Rio Tinto but 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. As the case of biodiversity offset plans in the UK shows, the UK Government hopes *"that biodiversity offsetting could help to accelerate the construction of homes by making it easier to overcome environmental objections."*⁶⁵ Elsewhere, companies use offsets to justify the expansion of 'biodiversity-neutral mining', 'carbon neutral coal fired power plants', 'biodiversity-neutral uranium mining' in National Parks when archaeological sites are destroyed to make room for the mines, carbon- and supposedly biodiversity-neutral' expansion of airports and runways that the majority of citizens neither use nor want.

Rights of Nature versus Permission to Destroy

Proponents of 'ecosystem service' valuation say that it is important to be able to show the 'true cost of destruction'. There are two problems with this statement. First, as Albert Einstein noted *"Not everything that can be counted counts, and not everything that counts can be counted."* Hence, there will never be a number that reflects the 'true cost of destruction'. No mathematical calculation will ever be able to capture the many aspects of nature. The value of nature simply is incalculable: no mathematical number can express the joy of hearing the stream run over its rocky ground, the sound of a nightingale, the earthy smell of decaying wood teeming with insect life, the memories of cultural practise captured in pictograms, tree carvings, etc. It is not a matter of increasing effort, funding or methodologies but inherent in the concept itself that every mathematical calculation will always only capture a very small fraction of nature's value. The claim that valuation of nature, or calculating the value of a nation's 'natural capital', will represent the full and true value of nature is not just misleading, it is ludicrous. Yet, it is an often heard justification for advancing with the calculations that are paving the way for the trade in 'ecosystem services'.

Continuing down that path leads us into a radically different direction than exploring how to apply the concept of Rights for Nature as a starting point for land use and economic planning, and working not from the premise of dominating nature but of respecting nature. Offsets - whether they are for water, carbon, biodiversity, natural beauty, forest restoration or pollination by

⁶⁴ Rio Tinto case study in: WBCSD (2012): Biodiversity and ecosystem services scaling up business solutions. Company case studies that help achieve global biodiversity targets.

⁶⁵ Ancient woods face axe in drive for homes. Government plan to 'offset' loss of habitat. The Times newspaper 4 January 2014. <http://www.thetimes.co.uk/tto/environment/article3965473.ece>

bumblebees - do not help us, neither individually nor collectively as society, to change our mindset and economic model towards enoughness. As Kevin Anderson from the Tyndall Center explained,⁶⁶*offsets are worse than nothing* because they maintain the illusion that 'business as usual' is an option and they create the illusion that something is being done to change business as usual.

PES as a way of de-politicising the struggle for a different economic and development model

There is another problem with the assumption that showing the 'true cost of destruction' will change political and business decisions that destroy nature. The proponents of nature valuation have yet to explain how showing the number will change the political decisions. Showing the number in and by itself does not address the need for continuous economic growth in a capitalist economic system. It also does nothing to change the existing imbalance of power and domination, as UK writer George Monbiot points out: *"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."*⁶⁷

Proponents of the valuation of nature fail to acknowledge that the underlying issue is one of politics, power and domination, about what kind of development we want to pursue. Putting PES and economic valuation of nature at the center of the debate leads to the debate becoming de-politicised: the focus turns from the political decision to a debate about the technicalities of destruction. We already witness how organisations and movements insisting on discussing what kind of development to pursue are being marginalised by politicians, corporations and technical experts who insist that dialogue be held only with those parts of civil society that are 'reasonable'. The dispute then is not anymore about whether to build the road, license a mine in a National Park, bulldoze the ancient woodland for a new luxury housing development, etc. but about how many units of which quality of ecosystem service A, B, C and D are needed to offset the destruction.

Pretending that no significant differences exist between the different kinds of PES, and that all PES schemes are basically the same, thus prevents an honest, transparent and inclusive public debate. It does so, because it makes it possible for many conservation NGOs to claim that *"REDD is merely a way of recognizing and giving monetary support to indigenous peoples for what they are already doing"*. Already, many of the programmes with the characteristics described in I and II have shown that 'win-win' situations are rare and that even these programmes can undermine indigenous peoples' rights, weaken community cohesion, cause conflict or increase inequality. These risks increase even more when PES means 'offset' payment. In fact, these two types of arrangements carry such different levels of risk for indigenous peoples' rights and forest dependent communities that they should not be called the same. The confusion that results from lumping all these different payment arrangements together helps the conservation groups, the traders and financial market consultants interested in creating the new offset commodities. But it prevents a transparent and informed analysis of the risks and potential benefits from different payment schemes that are offered to communities.

⁶⁶ Kevin Anderson (2012): The inconvenient truth of carbon offsets. A World View published in Nature. April 2012. <http://www.nature.com/news/the-inconvenient-truth-of-carbon-offsets-1.10373>

⁶⁷ George Monbiot (2013): Pricing the Priceless. September 18, 2013. <http://www.monbiot.com/2013/09/18/pricing-the-priceless/>

Such confusion also hinders movement building. In the EU and in North America, confusion between PES schemes of the kind described in I or II as opposed to III or IV with respect to carbon trading continues to be an obstacle to honest debate among NGOs, making campaigning and alliance-building, for example in support of the ‘Scrap the ETS’ declaration that demands that the EU carbon trading scheme be abolished, more difficult – and therefore prolongs the carbon markets disaster.

*“While natural capital accounting empowers the money men,
it disempowers the rest of us and undermines public involvement”⁶⁸*

⁶⁸ George Monbiot (2013): Pricing the Priceless. *September 18, 2013*. <http://www.monbiot.com/2013/09/18/pricing-the-priceless/>

Mobilising to say ‘No to Trade in Ecosystem Services’

Saying “No to offsets” is saying “Yes” to keeping corporations within laws defined by clear limits for everyone, with fines and penalties for violation of legal pollution limit, not laws defined by fees that buy permission to destroy and pollute. In Cochabamba in April 2010, at the first World People’s Conference on Climate Change and the Rights of Mother Earth⁶⁹, a popular alliance of non-governmental organizations and networks and social movements was forged to search for its own agenda. At Rio+20 the process continued and resulted 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 Dismantle Corporate Power and Stop Impunity.⁷⁰

PES schemes that give permission to destroy even more nature than the law allows will further increase this corporate power. The opposite is needed. All these processes therefore need to be strengthened in order to effectively fight the big corporations and financial institutions responsible for the financialization of nature and of life in general.

Today it is essential, to begin with, for civil society movements and organizations to demand information and transparency on the financialization processes that are rapidly advancing in the countries of the South. Above all, the role of governments needs scrutiny. Without consulting meaningfully, they propose and approve laws and decrees, often contrary to their own constitutions and to international agreements, to facilitate the appropriation of land and nature by financial capital. Putting the “technical” and seemingly “complex” aspects of financialization into the plainest language possible is an important first step to facilitating a more open public debate.

The more people are aware of the issue and understand its perversity and its impact on the lives of communities who depend on forests, or on nature in general, and on all peoples in the long run, the more possibilities there will be to build a solid opposition against these false solutions.

Nature is not for sale. It is priceless, and it must be defended.

Take Action

- Sign on to the Statement No to Biodiversity Offsets (EN, FR, ES, PORT, and others)
<http://no-biodiversity-offsets.makenoise.org/>
- Help distribute the Peoples Agreement adopted at the World People’s Conference on Climate Change and the Rights of Mother Earth in April 2012 in Cochabamba, Bolivia
<http://pwccc.wordpress.com/2010/04/24/peoples-agreement/>
- Support groups that call on the EU to end its carbon trading market, the EU Emissions Trading Scheme: Scrap the EUETS <http://scrap-the-euets.makenoise.org/> (EN, ES, FR)

⁶⁹ <http://pwccc.wordpress.com/2010/04/24/peoples-agreement/>

⁷⁰ <http://www.stopcorporateimpunity.org/>

Further Reading and Viewing

- **Stop the takeover of nature by financial markets.** A short animated film about the takeover of nature by financial markets and the real alternatives coming up from civil society. An initiative of SOMO, European ATTAC Network, Food & Water Europe, Friends of the Earth, Carbon Trade Watch, WEED, Ecologistas en Acción, AITEC and Campagna per la riforma della Banca Mondiale. Available at <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
- WRM publication '**10 things communities should know about REDD**'. Available in EN, FR, ES, PORT, in EN at <http://wrn.org.uy/books-and-briefings/10-things-communities-should-know-about-redd/>
- **Payments for ecosystem services and the fatal attraction of win-win solutions.** Academic article by R. Muradian and others. <http://r1.ufrj.br/cpda/wp-content/uploads/2013/11/Conservation-Letters.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". With examples showing how biodiversity offsets are used in the UK and France to undermine local opposition against unnecessary large infrastructure projects. http://www.fern.org/sites/fern.org/files/Biodiversity3_EN.pdf
- **Green Economy: Commoditization of the Commons** article from IATP explains the connection between the Green Economy and PES trading related to water. http://www.iatp.org/files/2012_03_09_GreenEconomyWater_SV.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 our current global. It also criticises the finance sector's 'Natural Capital Declaration' which outlines new market mechanisms which the finance sector aims to use as part of the so-called 'green economy'. Available in FR; ES, EN. <http://www.criticalcollective.org/?publication=nature-is-not-for-sale>
- **Rainforest Roulette? Why creating a forest carbon offset market is a risky bet for REDD.** Rainforest Foundation UK. 2012. http://www.rainforestfoundationuk.org/files/RFUK_Rainforest_Roulette.pdf
- 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.
- 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

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- 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
- Lei de Pagamento por Serviços Ambientais do Acre beneficia mercado financeiro. Por Amyra El Khalili
<http://terramagazine.terra.com.br/blogdaamazonia/blog/2012/08/14/lei-de-pagamento-por-servicos-ambientais-do-acre-beneficia-mercado-financeiro/>

Reports about impacts of PES and REDD offset projects on communities

• **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.’* (FR only and print only)

• **Carbon Discredited.** By FERN. 2012. *‘The N’hambita Forest Carbon Offset Pilot Project in Mozambique, run by the company Envirotrade, and initially funded by European Commission (EC) money, has failed to deliver most of its climate change, development, financial and learning objectives. Envirotrade suggest that emissions have been offset against supposed carbon stores in Mozambique, which they cannot calculate because of the problems inherent in baselines and the impossibility of verifying claimed savings.’* <http://www.fern.org/nhambita>

• **redd: the realities in black and white.** By Friends of the Earth. 2010. *“Reducing Emissions from Deforestation in Developing Countries” holds out the enticing prospect of mitigating climate change, conserving threatened biodiversity, and bringing much-needed development finance to poor Indigenous Peoples and local forest-dwelling communities - at the same time as offering significant profits to investors. All this immediately begs the question: is REDD too good to be true? The answer, unfortunately, is “yes”. [...] The case studies in this report clearly show there is a major REDD race already underway.’* <http://www.foei.org/wp-content/uploads/2014/01/REDD-ingles-final-17-11.pdf>

- **In the redd: australia's carbon offset project in central Kalimantan.** Friends of the Earth. 2011. *'The Kalimantan Forests and Climate Partnership (KFCP) is a bilateral forests and climate agreement between the Governments of Indonesia and Australia that was first announced in 2007. It is intended to produce carbon offsets by reducing emissions from deforestation and land degradation. [...] The report analyses the social and environmental effectiveness of the KFCP in the light of new developments in both Kalimantan and national REDD policy in Indonesia. It finds that REDD forest carbon offsets are a false solution to climate change.'* <http://www.redd-monitor.org/wp-content/uploads/2012/03/REDD-report-2.pdf>

- **REDD+ in Madagascar : You can't see the wood for the carbon.** Basta! & Amis de la Terre. 2013. *'Madagascar compte quatre projets pilotes Redd+ menés par des grandes ONG de conservation. La finance carbone apparaît aujourd'hui pour ces ONG comme l'option la plus prometteuse pour gérer durablement des aires protégées. certaines de ces ONG ont déjà commencé à vendre des crédits carbone issus de ces aires protégées sur les marchés volontaires. d'autres envisagent de le faire. c'est le cas de la fondation GoodPlanet/Etc terra et de WWF Madagascar qui mènent le projet holistique de conservation des forêts (PHCF) à Madagascar depuis 2008, avec le soutien financier d'Air France.'* Also in EN. http://www.amisdelaterre.org/IMG/pdf/rap_madagascar_en-2.pdf

- **Democratic Republic of Congo. Conservation International REDD pilot project: a different kind of Disney production.** Belmond Tchoumba for WRM. 2011. *'This report is based on the findings of research conducted by WRM 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, specifically in the so-called community reserves of Tayna and Kisimba-Ikobo. [...] There exist serious land and forest rights conflicts among members of the communities of Kisimba and Ikobo and between them and the parties responsible for the project. Those who oppose the project believe that it strips them of their land and forest rights over their ancestral territories, which they view as unacceptable. [...] This case study reveals that local communities are risking being marginalized by a process they do not understand and in which they are not allowed to participate. Some believe that the project's promises of massive development and personal gain will change their lives for the better, although the actual form these changes will take has never been specified. The communities of Kisimba and Ikobo in particular want a different kind of involvement in forest and biodiversity conservation, and possibly in REDD projects, but only on the condition that they are able to maintain control over their forests.'* <http://wrm.org.uy/wp-content/uploads/2013/01/DRC REDD en.pdf>

- **Fixing Carbon, Losing ground.** Payments For Environmental Services and Land (in)security in Mexico. By Tracey Osborne. Human Geography. Volume 6, No. 1, 2013. *'Tracey Osborne shows how the requirements of Mexico's national Payment for Environmental Services (PES) program for identifiable boundaries and the long-term storage of carbon appear to be facilitating land certification, the initial step toward privatization. She documents how land certification, by itself, drives local land markets, and produces land insecurity without privatization. This, in turn, threatens land access for the most marginalized members of communities as shown in the example of La Corona, a community in the Lacandon Jungle of Chiapas, Mexico.'* <http://www.hugeog.com/>

- **Carbon Trading and REDD+ in Mozambique: farmers 'grow' carbon for the benefit of polluters.** La Via Campesina Mozambique. 2012. *'Food production and people's sovereignty in Africa could be seriously compromised by carbon capture projects and the so-called Reducing Emissions from Deforestation and Forest Degradation Plus (REDD+) mechanism. They can exacerbate food insecurity on the continent and could result in the loss of control over land and*

forest resources for African farmers. This scenario could become a reality in the near future in Mozambique, as the country has offered its land to serve as a “model” for carbon capture projects and REDD+.’ <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. *‘The article explores the social and political dimensions of a ‘REDD-like’ PES scheme in Cambodia, where payments for avoided deforestation and biodiversity conservation were made to communities in the Cardamom Mountains. [...] project politics can hide behind a technical facade, appealing to the apparently natural and objective qualities of market forces, and creating a convincing but deceptive ‘masquerade’. We examine this process here, exploring how market-style or neoliberal conservation can powerfully re-shape nature-society relations, while simultaneously disguising its political nature behind the market metaphor.’*

- **“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. The report is available in French, English and Spanish and can be accessed at: <http://www.amisdelaterre.org/purprojet>

- Additional WRM reports and videos documenting the impact of REDD and tree planting offset projects are available at <http://wrm.org.uy/browse-by-subject/mercantilization-of-nature/redd/> and <http://wrm.org.uy/browse-by-subject/mercantilization-of-nature/trade-in-environmental-services/>