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"Carbon rights", REDD+ and payments for environmental services☆

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ABSTRACT

Reducing Emissions from Deforestation and Forest Degradation (REDD+) has become a central dimension of the contemporary international forest regime. The mechanism seeks to reward actors for keeping or restoring forests as a means to reduce carbon emissions. Carbon rights, here understood as title to carbon credits, have an odd status in the REDD+ debate. They are closely associated with the belief that REDD+ will generate (economic) "rents" – i.e. revenues exceeding the full cost of the corresponding effort – which means framing the discussion in terms of entitlement to revenues beyond mere financial compensations. We suggest that, in an "ideal" REDD+ scheme, the possibility of obtaining rents in REDD+ would be very limited. In the real world, rent could be created by strategic behaviours by setting a reference emission level (what would occur under a business-as-usual scenario) and by possible acceptance, for political reasons, of inappropriate rules such as being remunerated for the full stock of carbon. The carbon rights rhetoric leads to rent-seeking since remunerations could be disconnected from the active contribution to the production of emission reductions, which is a public good by nature. Another interpretation of carbon rights is the right to benefit from the sale of carbon credits, a framework within which what is at stake is sharing the benefits deriving from the human production and the sale of these benefits, a traditional social issue. In this case, we argue, the concept of carbon rights is useless and even misleading. Compensating for easements would be a more appropriate framework for designing incentive schemes such as payments for environmental services (PES). Reforming land tenure codes to allow individuals, families and communities to claim property or collective tenure rights on the land and the trees is the issue that matters in order to start tackling fairness in REDD+ and PES initiatives.

> *"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, 2011 (commentary in the video "Carbon Markets: Trading with our Future", by Occupy CoP 17 on Vimeo. http://vimeo.com/32995647).

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1. Introduction

The concept of ''carbon rights'' emerged relatively recently in the debate on Reducing Emissions from Deforestation and Forest Degradation (REDD+) although it had already acquired legal status in some countries, including Australia and New Zealand, in the early 2000s. Regarding ''carbon rights'' in Australia, Hepburn (2009, p. 247) states:

> ''*The primary feature of the carbon rights legislation in each State in Australia is the validation of the carbon right as a land interest separate from the land upon which it is situated. In this respect, the legislative provisions have amended the established common law presumption that trees growing upon the land and the carbon contained within those trees are a natural part of the land and therefore belong to the landowner*''.

Apart from when such a legal status has been granted, Peskett and Brodnig (2011) consider that the concept is often ''*poorly defined*''. They mention that there is no single operational definition of ''carbon rights'' at the international scale: ''carbon rights can only be defined broadly as ''*intangible assets created by legislative and contractual arrangements that allow the recognition of separate benefits arising from the sequestration of carbon in the biomass*'' (TCG UN-REDD, 2009; Streck and O'Sullivan, 2007 – cited by Peskett and Brodnig, 2011).

The concept is specific to the debate surrounding the mitigation of forestry-related climate change, and no similar debate is occurring in the energy/industrial sector. This is because forest activities embody land tenure issues. In many cases, property rights to forest land overlap, with formal ownership claimed by the state competing with local rights exerted by different groups, families or ''communities'' on a customary basis. The debate about carbon rights began in connection with the high financial expectations awakened by the REDD+ mechanism,[1] and is often expressed in terms of social justice by analysts who defend pro-poor policies. However, one can question whether framing the issue through the prism of ''carbon rights'' would lead to implicit preferences for a market, and/or project-based approach, which is strongly opposed by other social movements who support ''community and indigenous'' rights. As Peskett and Brodnig (2011, p. 1) put it: ''*Establishing who has rights to emissions reductions is likely to be essential in project based and market based approaches*''.

In Section 2 of the article, we explain how the carbon rights issue is linked to the debate on REDD+ architecture. In Section 3 we try to clarify the issue of ''REDD benefits'' by distinguishing between (economic) ''rent'' and ''benefits'', a distinction which is not sufficiently clear in the REDD-related literature. In Section 4, we discuss the relationship between ''carbon rights'' and land tenure, and explore the implications of the proposal to incorporate carbon rights in land ownership. In Section 5, we explain the possible trade-off between efficiency, which is typical of the economic perspective, and equity objectives. In Section 6, we discuss the changes in land tenure rules that are needed to implement incentive schemes at the local level in a way that does not require the notion of ''carbon rights''.

2. The link between the carbon-rights issue and the project-based approach for REDD+

Before the emergence of REDD, the inclusion of forestry in the Clean Development Mechanism (CDM) had been the subject of heated debate, especially in the lead-up to the UN Framework Convention on Climate Change's sixth Conference of Parties (CoP 6) in The Hague in 2000. The questions revolved around how to deal with non-permanence (the forest can be removed after the issuance of credits), the risk of leakage (displacement of carbon emissions beyond the project perimeter) associated with project-based approach and how to avoid inflation of carbon credits in an already unbalanced market. After much debate, CoP 6 decided not to allow ''avoided deforestation/conservation'' projects, because of concerns that huge amounts of carbon credits would be generated by large conservation projects in forests not fully threatened (lack of additionality[2]). However, the most persuasive argument revolved around the risk of ''leakage'' – inherent in projects that do not address the drivers of deforestation but only erect fences around forests (project-based approach), which inevitably lead to the displacement of pressure for deforestation elsewhere.

A seminal article, subtitled ''A New Proposal'' (Santilli et al., 2003) and presented as a discussion paper in 2003 at CoP 9 – and published in 2005 under another title (Santilli et al., 2005) – can be considered as the starting point for the REDD proposal. It drew on lessons learned during the intense discussions that took place before and during CoP 6, and the rejection of project-based conservation schemes. The ''Compensated Reductions'' concept refers explicitly to a *national crediting scheme*, not a project-based one, in order to reduce the problems of leakage.[3] CoP 13 encouraged ''demonstration projects'' to tackle the drivers of deforestation. Since then there has been a blossoming of REDD projects throughout the world, despite the fact that the intention behind REDD was to circumvent the project approach and focus on the national level.

Potential REDD investors, including conservation organizations, have actively promoted project-based approaches, since they do not want to depend on the goodwill of a government to share REDD revenues with projects. This is referred to as the

[1] The REDD+ mechanism would lead to financial transfer from industrial countries, either by means of public funds for rewarding developing countries for their ''performances'' in curbing deforestation, or through the carbon markets in which industrial countries having committed to reduce their emissions (and firms from these countries) would buy ''emission permits'' from the developing countries where REDD+ activities take place.

[2] Under the CDM, the candidate project must prove that it ''would lead to reductions in emissions that are in addition to any that would occur in the absence of the project activity'' (Kyoto Protocol, Art 12, § 5, al. 3).

[3] The authors are also aware that ''*international market leakage is an issue*'' (international leakage means deforestation which is avoided in one country moves to another country), but they seems to consider this risk less acute.

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"nested approach" (Pedroni et al., 2009). In short, for a given quantity of carbon credits granted to the country at the end of a commitment period, REDD projects should first be credited (possibly with a discount to cope with the various risks) and the government takes the remaining credits (provided that there are some). The difficulty is to decide what to do if deforestation *increases* at the national level (i.e. deforestation above the agreed reference level), while all the projects are certified as having reduced deforestation in their areas of intervention. In large countries, it is most likely that "REDD+ projects" would cover only a fraction of the forested area nationwide. It is not unlikely that a government would encourage, on the one hand, REDD+ projects in some areas while, on the other hand, allocating large tracts of forest land to agribusiness in other areas. Alternatively, leakage could take place from the areas under REDD+ projects, with a displacement of the pressure of deforestation to other forested areas.

As the nested approach is implicitly a market-based approach, it would create "hot air" (emissions permits that do not correspond to a net reduction in emissions), except when a safeguard is installed which states that projects cannot be credited if there is no reduction in deforestation at national level. But Angelsen et al. (2008) specify: "*Should the national level fail to deliver carbon benefits, independently validated and verified subnational activities would still be credited.*" This position is logical: the former option (no crediting) would prevent private actors from investing in carbon projects where they do not manage the outcome in terms of crediting. But it would be at the expense of principles of environmental integrity. For that reason, the nested approach does not appear to fundamentally differ from a project-based approach.The "carbon rights issue" is therefore typical of a project-based approach but is also generally associated with a market-based approach (even though it could be also associated with funds-based solutions). One could sketch the competing options currently debated in international negotiations about a REDD+ architecture and financing in Fig. 1.

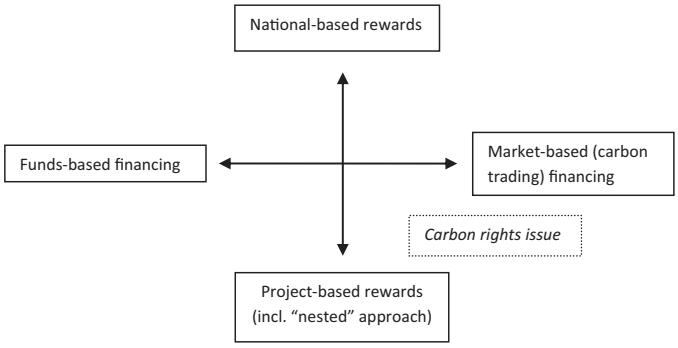

Fig. 1 – The main alternatives for a REDD+ architecture.

3. REDD+ benefits: clarifying the analytical framework

Will REDD+ be a new "rent" for forested developing countries that can compare or replace the "oil rent", as claimed by the president of Gabon, Ali Bongo, during his electoral campaign in 2009 (Bongo was referring to a *rente carbone* in French)? What does such an expectation imply? To answer this question, we need to examine the economics behind the mechanism.

Here we use the word "rent" in its economic sense. An economic rent is defined as "the fraction of profits above what would be strictly necessary for the capital to remain invested in a given economic activity" (Bannock et al., 2003:113). It could be considered as "excess" profit compared to the average situation that prevails in a given sector at a given time. Rents can be generated by innovation, but in natural resources economics they have more to do with favourable location, low cost of extraction and higher quality of the resource. In short, to paraphrase the 19th century classical economists, these rents are generated by "free gifts of nature" rather than acquired through investments and efforts.

3.1. *Compensating for opportunity costs*

REDD+ is an incentive-based instrument, based on the idea that both public and private agents are self-interested and are able to calculate the full cost and benefits associated with various options (for a criticism of this hypothesis, see Karsenty and Ongolo, 2012). The basic idea is that developing countries have an opportunity cost if they choose to conserve (in the broad sense) their forests rather than convert them to agriculture or any other non-forest land use. The REDD+ mechanism is intended to provide sufficient financial incentive to change those public or private decisions that would otherwise lead to forest conversion. This means that the amount of transfers – either through the carbon market or through international ad hoc funding – is comparable with the opportunity cost, which differs widely among countries that do not have the same capacity to attract foreign and domestic investments (for example agribusiness).

In a market-based framework, the carbon price should be high enough to compensate for the opportunity costs. If this is not the case, to prevent the failure of the REDD+ mechanism it is likely that international public funding will be needed to salvage the process and to fill the gap between the market's unwillingness to pay and the needs. The story is not much different if transfers are made through an international fund instead of the carbon market: normally, the transfers ("REDD+ payments") should equal, or slightly exceed, the opportunity cost of conserving forests. *In such cases, there are no "rents" but rather financial compensation* in a zero-sum game.

A particular situation could be the one of a highly forested country in which the rate of deforestation is high and is driven essentially by small-scale subsistence agriculture, i.e., poor farmers with low opportunity costs. Such a country would probably earn a lot of carbon credits if it succeeded in curbing its deforestation rate while its farmers (providing they accept such a deal) would have been compensated at their opportunity cost for giving up or slowing their slash-and-burn activity. Providing the carbon price is high enough, a "REDD+ rent" is possible only if:

Expected value of carbon credits > opportunity costs + transaction costs.[4]

[4] Here we use a widely accepted definition of transactions costs, as the costs of setting up and running a REDD+ governance system.

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Of course, this situation could occur only if the country chose to ignore the potential opportunities it could seize in the future, such as agri-business investors looking for available land, even though such investments have barely taken place up to now. If the government includes potential threats that also embody a high opportunity cost, such as agri-business, in its ''baseline scenario'' (the *business-as-usual* projection of deforestation), the equation might change. On the one hand, predicting a major increase in deforestation maximizes the possibility of receiving credits (especially if the deforestation forecast has been inflated). On the other hand, the opportunity cost could be really high and cancel the prospect for a REDD+ rent. In sum, if we leave aside the thorny issue of the strategic design of convenient ''baseline scenarios'', the prospect for ''rents'' in the REDD+ mechanism are limited: opportunity costs are often high, they tend to escalate with growing land scarcity and prospects for a high carbon price is almost nil in the short and medium term.

The seminal article by Santilli et al. (2005), anticipating what was later called RED, and eventually REDD+, referred to ''compensated emission reductions''. This does not mean that countries that succeed in curbing deforestation under REDD+ will not derive *benefits* from doing so, *once their opportunity costs have been compensated*. The sustainable use of forests can produce huge direct and indirect benefits, ranging from the collection of different forest products to ecotourism, not forgetting improved water quality, reduced erosion, etc. At the local level, compensating farmers for the revenues they expect from clearing a new piece of forestland, would allow them to reallocate some work time to another activity (if other activities are available, which is often not the case), perhaps creating an opportunity to increase their net revenues (see Table 1).

3.2. *Rent-seeking*

Such benefits listed in Table 1 are not the REDD+ ''rent'' some countries and individuals expect. In international negotiations, COMIFAC (Central Africa Forests Commission, a sub-regional intergovernmental body) proposed remunerating countries for conserving their carbon stocks (''early efforts'') rather than for reducing a deforestation rate measured against a baseline. In fact, the low deforestation rate of Congo Basin's countries probably has little to do with their public policies, but to either their low population density or their relative lack of attractiveness for large agri-investors due to unclear property rights, poor infrastructure and the perceived transaction costs associated with instable institutional frameworks (Tollens, 2010). A similar rent-seeking objective can be detected in the ''national circumstances'' mentioned in the same proposal. In a nutshell, the proposal allows countries to increase deforestation in the name of their development needs and their current low rate of deforestation, without preventing them from being remunerated. This brings us back to the issue of predictive ''baseline scenarios'', in which rent-seeking behaviour frequently leads to implicit environmental blackmailing, as attempted by Guyana in 2008 with the help of the McKinsey Company. In a forecast of what would be the future deforestation rate in an ''economically rational scenario'' (i.e. the one that any economic agent aiming at maximizing its profit would choose in accordance with neo-classical economics) 90% of the Guyana's forest would have been converted in 25 years, while the current deforestation rate of this country has been close to zero so far (Gregersen et al., 2010).

For the sake of discussion, we will temporarily ignore the possibility that a ''REDD+ rent'' (as we define it here), could be created through a ''convenient'' baseline setting, and assume that the prospect for REDD+ rents is limited (especially if we consider that the opportunity costs for conserving forests will increase with population growth, escalating commercial pressure on land for food and biofuel production, etc.). In sum, *REDD+ would (ideally) compensate for the short-term and tangible foregone revenues associated with forest conversion, unlocking the potential for indirect, longer term and non-tangible revenues associated with forest conservation* contemplated by economists who calculate the total economic value of ecosystems.

4. Carbon rights and land tenure

Having clarified the expectations of some players, and the status of the ''REDD rent'', we can now turn to the ''carbon rights'' issue. As mentioned earlier, carbon rights surprisingly appear to be an issue only in forestry and land-use mitigation activities, and are rarely used in energy-related mitigation activities. In a market-based approach, carbon credits are the only tangible financial expression of the carbon rights. Even though REDD+ rules are not set yet, one could expect that the principles underlying the CDM will be kept, namely additionality, permanence and minimisation or risk of leakage. The Marrakesh Accords having defined CDM rules in 2001 specify that the project boundary shall ''encompass all anthropogenic emissions by sources and/or removals by sinks of greenhouse gases under the control of the project participants that are significant and reasonably attributable to the [CDM] project''. This principle of *attribution* is critical: it aims at avoiding credits

Table 1 – Difference between rent and benefits under REDD+ projects.

Conditions allowing for a ''rent'' that can be kept by the project promoter or shared with the resources users	*Potential benefits (once the opportunity costs are compensated) for the resources users partners of a REDD+ project*
''Inflated'' baseline (overstatement of deforestation threats) allowing for non-additional carbon crediting	Potential reallocation of work force (deforestation activities are dropped) into alternative activities or leisure
Low forest users' opportunity costs (for conserving the forest) combined with (i) carbon-rich threatened forest and (ii) high carbon prices	Maintenance of provisioning and regulation services depending on forests (bushmeat, NTFPs, water quality, reduced erosion...)
	Allow for employment opportunities if the project rehabilitates degraded ecosystems and plant trees

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claims for any increase of carbon not directly human-induced. Keeping the same rules would mean that, for REDD+, credits can be allocated after a series of trials where the claimant demonstrates its active involvement in the conservation or the enhancement of the carbon stock. In particular, the conservation should prove to be additional, i.e. evidences of tangible forest conversion opportunities (or threats) should be demonstrated. The claimant can be the forest owner or a project promoter seeking carbon business. As already experienced with the CDM, demonstrating the additionality, assessing potential leakages and calculating the avoided emissions that can be traded, will be complex and expensive. This is why most of the ''REDD+ projects'' throughout the world are undertaken at the initiative of an investor who is not the forest owner, and would therefore be entitled to claim the carbon credits.

4.1. *Carbon rights as easements*

We would suggest that carbon rights are derived from ''conservation easements'', a category already used in recognition of the potential benefit of natural resources interest in Canada and the United States. Easements are a limitation (consented by agreement or imposed by law) of the ownership right, ''*the right to use the land of another for a specified purpose, as distinguished from the right to possess that land*'' (Columbia Encyclopedia, 2008). Conservation easements were also cited by Rice et al. (2001) as a direct incentive for conservation and as an alternative to land purchase by ''*conservation investors*''. Ferraro and Kiss (2002) refer to easements as instruments that can be used for ''*direct payments for biodiversity*'', another name for what it is currently termed ''payments for environmental services'' (PES).[5] And the amount of money required to reach an agreement about such easements will correspond to a bargain price, somewhere around the opportunity cost level entailed by the easement.

If carbon rights can compare to specific easements, there is no question about their ownership: they are owned by those who invest and compensate the land owner. Could this be different in developing countries? In fact, the main difference appears to be land property. Here we use the definitions of 'property right' proposed by Commons (1968): ''a property right is an enforceable authority to undertake particular actions in a specific domain''. In many developing countries, notably in Africa and Asia, forests are public property (Sunderlin et al., 2008) even though rural communities and indigenous people exercise their customary rights of access, extraction, inheritance and, increasingly often, land transfer through various types of transaction. This duality is considered by many analysts to create tenure insecurity and could favour ''land grabbing'', if in its capacity as landlord, a government decides to allocate forest lands to agro-industrial investors over the communities' rights. In a report devoted to the ''*tenure in REDD*'', Cotula and Mayers (2009) claim ''*Clarity on who owns carbon is* (. . .) *key*'' (p. 9) and they made the following recommendation:

> ''*Ensure carbon rights are effectively established in national regulations.* ***Initial evidence suggests that dangers lurk for local tenure security where carbon rights are separated from land tenure****. Rather than allowing unclear situations to be potentially exploited at the expense of local benefit as REDD develops, it is likely to be increasingly important for carbon rights to be defined in national regulations*'' (Cotula and Mayers, 2009, p. 25).

Here the concern is that governments could decide to retain ownership of carbon credits at the expense of those who Cotula and Mayers deem to be the true owners (the forest villagers and indigenous people), as was allegedly the case in New Zealand before this policy was eventually reversed in 2007 (Peskett and Harkin, 2007). But such a recommendation does not clarify the nature of ''carbon rights'': *if they should not be separated from land tenure* (in this case customary rights) *they cannot compare to easements*, which are distinct from land ownership (in the sense of the effective property rights exercised by the local users). ''Carbon rights'' cannot compare with a right *embodied* in a piece of land, in the sense they are *generated* by an investment (or a payment for keeping the carbon stock) that can be made either by the owner or by a tierce. It could be different if REDD+ payments were made on the sole base of the carbon stored in the forest; however, this option has not been agreed in international negotiations on REDD+ since there is a need to calculate the reductions against a reference level, i.e. a projection of what would be the change in carbon stocks in a *business-as-usual* situation over a given period (also referred to as the baseline scenario). The additionality criteria, which have a key role in the Kyoto rules, should prevent remuneration of a stock: only the avoided emissions (and, since REDD+, the increase of the stock) can be credited.

Another look at the rules in the CDM helps clarify this ownership issue. For an enterprise in the energy sector the carbon credits go to the investor whose investments triggered emission reductions.[6] As for REDD+, if a government decides by law that carbon credits must be shared between the investor and the forest owner (the communities), this would not alter the ownership of the credits, it would only call for a more equitable sharing of the benefits between the ''partners'' (as taxes do). The distinction made by Robert O'Sullivan[7] at a side-event in Cancun (16th UNFCCC Conference of Parties – CoP 16) between *rights to carbon as entitling someone to carbon credits* and the *right to benefit from the sale of carbon credits* is critical in this respect, since it gives priority to the social dimension (equitable sharing of benefits) over the legal dimension (see also Peskett and Brodnig, 2011).

4.2. *Carbon rights as a new component of ''land rent''?*

The risk with Cotula and Mayers' policy recommendation, and also with other documents such as the one by Norton Rose

[5] A PES is a payment to an agent for services provided to other agents (wherever they may be in space and time) by means of a deliberate action aimed at preserving, restoring or increasing an environmental service agreed by the parties. PES, therefore, result from a voluntary agreement between parties. Many REDD+ projects can be featured as specific (carbon-oriented) PES projects.

[6] Whether the investor is a foreign company or the enterprise itself.

[7] Cf. REDD-net (2010).

Corporation[8], is that it could pave the way for *an assimilation of "carbon rights" in a "rent"* in the economic sense used in the previous section of this article. Indeed, if carbon rights should follow land tenure rights, the issue of these rights *generation* (through changes with respect to a business-as-usual situation), that distinguishes them from "rent", are at risk of being overlooked. Apparently, Argentina has decided to link carbon rights with land ownership: "*Argentina's carbon rights regime recognizes the right to receive compensation for forest protection, including that the entitlement to carbon benefits rests with the owners of the land or rights holders to the forest resources*".[9]

It is important to note that "carbon rights" cannot compare with the "land rent" analysed by Ricardo (1821). The origin of land rent is the difference in potential productivity between the most fertile lands and the marginal ones cultivated to respond to increasing food needs.[10] In Ricardo's scheme, the landowner has no role in establishing the rent for the land. Whilst doing nothing, he simply appropriates from the farmers cultivating his land the higher rents enabled by his more advantageous site, compared to those enabled by marginal sites. The REDD+ and carbon-oriented PES common principle is designed in a very different way: it requires an *active contribution*[11] to the production of a public good, emission mitigation. From this point of view, a carbon right cannot be featured as a "right" to a "carbon rent" that would be proportional to the standing carbon stock on a given property (similar to the "fertility" in Ricardo's scheme).

Beyond such a principle of efficiency (rewarding an active contribution rather than a passive recipient), one should also question the practical dimension of linking carbon rights to land ownership. In a market-based approach – generally linked with the carbon rights topic – it is assumed that reaching the carbon market entails significant transaction costs, to say nothing about costs related to carbon measurement, baseline setting and MRV (monitoring, reporting and verification) procedures. Communities will rarely be able to cover these costs on their own (or to borrow the money they need to do so). This is why, in most cases, it is investors who initiate what is generally called a "REDD+ project" under a contractual agreement with the community. The investment is made only if the expected benefits from the carbon credits' sale exceed the various costs for running the project and the share of the proceeds negotiated with the community. The amount of the share of the proceeds is likely to be discussed with reference to the opportunity costs of giving up some deforestation/degradation activities, or freezing a portion of land for plantations.

Mutatis mutandis, we come back to the framework we set for REDD+ at the national level. REDD+ projects will be undertaken only if the expected value of carbon credits exceeds the costs of generating them (opportunity costs + transaction costs). If all the carbon credits were seized by the landowner, no investor would invest in REDD projects.

Let us leave aside the possibility that agents would simply be paid for the carbon stored on their properties. If, by law, the "carbon rights" (the value of the expected carbon credits) were assigned to the landowner rather than to the investor, *it would not leave any room for external investors and it would allow only large private landowners* (with financial capacities and REDD+ opportunities) *to undertake such projects*. What a lawmaker could do would be to try to seize not the carbon credits, but the "economic rent" (the value of carbon credits beyond what is needed to pay all the costs, including a normal remuneration for the investor – see Fig. 2), similar to what is sought in forest taxation. However, as argued previously, the prospect for such a rent is limited, due to low carbon prices and high opportunity costs for establishing conservation easements. In addition, estimating its magnitude will be challenging due to the asymmetry of information between the public authorities and the investors about the true costs and benefits of the project.

5. A trade-off between efficiency and equity objectives?

The debate about "carbon rights" needs to be linked with the debate on the efficiency and equity of PES. As acknowledged by economists, PES programmes offer few gains if the services that are being compensated are not additional (Pattanayak et al., 2010). Therefore "economic rationality" suggests that PES should reward effective provision of services. This means either a change in practices or continuation of conservation/sustainable forest management practices, while opportunities for conversion become more and more tangible (as suggested by a baseline scenario and analysis of opportunity costs of sustainable forestry in the area) (Knox et al., 2011). Payments concentrated only on "objectively threatened forests" in the name of efficiency is generally favoured in such a perspective (Alix-Garcia et al., 2003). As Wunder (2007) puts it:

> "*PES payments need to be applied strategically so that additionality can be demonstrated clearly. Only in this manner can users' willingness to pay over time be enhanced. Yet this also means people already living in approximate harmony with nature without any credible internal or external threat to service provision will generally not qualify as PES recipients.*"

However, such a recommendation might be challengeable from the equity point of view. Many consider that those who conserve their forests, and therefore deliver an environmental service, should be paid regardless of their opportunity cost to conserve this forest. This is considered to be especially applicable to indigenous and forest-dependent peoples, the

[8] "(...) *we consider that an approach that links carbon sequestration rights with forest ownership or control is more appropriate so long as requisite reforms or additional measures are included to address any inequalities in existing forest ownership or control regimes vis-à-vis local communities and indigenous peoples*" (Norton Rose, 2010).

[9] Readiness Preparation Proposal – Argentina (submitted to the Forest Carbon Partnership Facility – FCPF – in June 2010) p. 48, para 2.

[10] The Law of Rent states that the rent of a land site is equal to the economic advantage obtained by using the site in its most productive use, relative to the advantage obtained by using marginal (i.e. the best rent-free) land for the same purpose, given the same inputs of labor and capital. www.econlib.org/library/Ricardo/ricP1a.html#2.3 "On the Principles of Political Economy and Taxation – Ricardo (1821), Chapter 2".

[11] Such an "active contribution" could also prevent forest users from converting their land to other uses in a context where there are new opportunities opened by changes in the environment (e.g. new roads, tangible demand for land, etc.).

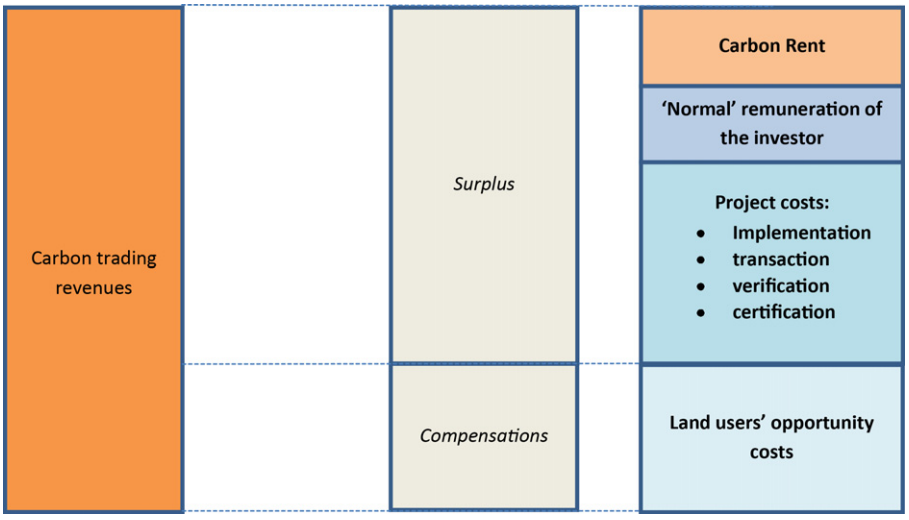

Fig. 2 – Analytical framework of costs and revenues in a REDD+ project.

so-called ''forest guardians''. Indeed, there is a risk that PES based on opportunity cost simply rewards potential destroyers who threaten the ecosystems. Such a perspective is reflected in the emphasis put on ''carbon rights'' in the REDD+ debate by Cotula and Mayers (2009) or Schwarte and Mohammed (2011).

Wunder (2007, p. 56) argued that, although this is an issue, it could prepare the ground for general environmental blackmailing:

> ''*To reward, in the name of fairness, anybody who delivers an environmental service seems a dangerous avenue. . . . Across-the-board entitlements to PES could endorse blackmail by anybody owning an unthreatened environmental asset, from Scandinavian forest owners menacing to cut down their trees for receiving carbon credits, to upland settlers threatening to deliberately pollute a river to receive watershed payments. It seems crucial not to take the PES-underlying victim pays principle to such absurd extremes.*''

It is probably too ambitious, and somehow dangerous, to expect economic instruments designed to address environmental problems to also be levers for social justice and poverty alleviation, especially when those instruments are market-based. Indigenous people might need specific policy measures to protect their land and resources rights and to access certain goods and services, such as school for their children (Froment and Bahuchet, 2003). Turning them, thanks to ''carbon rights'', into carbon *rentiers* who could sell their emission permits readily convertible in cash to polluting companies, would be a risky wager. Furthermore, in places such as Central Africa, where their tenure rights are not secured, since ''Pygmy'' groups are in a subaltern position vis-à-vis the ''Bantu'' villagers (Joiris, 2003), it could trigger conflicts aimed at capturing this financial godsend and thus threaten their security.

6. Carbon rights as a lever for land tenure reform?

The focus of several social movements on ''carbon rights'' can also be understood from the standpoint of a land tenure reform agenda, for the recognition of collective customary rights to forest land. In that respect, recognizing the carbon rights of the real forest tenants would pave the way for the eventual recognition of tenure rights of communities. This is perhaps what some communities are betting on. As acknowledged by one community leader, reacting to a legal opinion expressed by Baker and McKenzie, one of the world's largest law firms, saying the tribe owns the carbon-trading rights to their land:

> ''*This study confirms that we have the right to carbon, and is also an important political and legal instrument to recognize the rights of indigenous people for the carbon in their standing forests*'' said Chief Almir Narayamoga Surui, leader of the Surui tribe in the Brazilian Amazon. ''*It helps in our dialog with the government, businesses, and other sectors, strengthening the autonomy of indigenous peoples to manage our territories*''.[12]

On the other hand, such a bet would tend to legitimize a market-based architecture for REDD+ and, within this market-based architecture, the project-based one. M. Jenkins, CEO of Forest Trends, the organization that set up the Ecosystem Marketplace website, considers this legal recognition as an ''*opportunity and a path forward for indigenous groups to participate in emerging markets from a global warming deal*''. This way of thinking contrasts with the growing opposition of social and indigenous organisations to a market-based REDD+ (see for instance IPCCA, 2011). There is a dividing line among environmental NGOs about the carbon market, offsetting emissions and, especially, the inclusion of forests in carbon trading. Carbon rights rhetoric is likely to be a new point of disagreement between pro and anti-market solutions.

Furthermore, proposals for linking ''carbon rights'' to land tenure could jeopardize the objective of securing the tenure rights of communities and local people. Since, as we suggested above, it legitimizes rent-seeking approaches, it could encourage governments to refrain from transferring property rights.

[12] Retrieved 20/02/12 from: http://news.mongabay.com/2009/1208-surui_carbon.html#ixzz1gPB5fG9Q.

Table 2 – Bundle of rights associated with positions.

	Owner	Proprietor	Claimant	Authorized user
Access and withdrawal	×	×	×	×
Management	×	×	×	
Exclusion	×	×		
Alienation	×			

Source: Schlager and Ostrom (1992).

This transfer of property rights was a trend reported by White and Martin (2002), but a subsequent report (Sunderlin et al., 2008) mentioned the many constraints and obstacles put in its way. ''Recentralization'' of forest management by rent-carbon-seeking governments is feared by several observers, including Phelps et al. (2010, p. 312): ''*By monetizing forest carbon, REDD+ will substantially increase the market value of forests, including those previously considered marginal, incentivizing central governments to increase control*''. A carbon rights rhetoric, especially one that argues that these rights should not be separated from land tenure, would encourage recentralization attempts and could produce the opposite effects from those expected by carbon rights advocates.

6.1. *The property rights that matter*

If we adopt the ''bundle of rights'' framework analysis proposed by Schlager and Ostrom (1992), this includes, respectively, right of access, withdrawal, management, exclusion and alienation, each of which incorporates the previous ones. The concept of bundle of rights acknowledges that individuals may hold some forms of rights, while not holding others. Only the ''owner'' holds all the rights mentioned here (Table 2).

Changes in land tenure rules may be crucial for implementing user-oriented incentive systems at the local level. In many tropical countries, tropical forests are state property in one form or another. Access to the forest is through forest concessions, for timber exploitation, or different kinds of land concessions when the purpose is to clear the land for agricultural development. In many tropical countries, private ownership of land (with partial or full property rights) is still conditional upon developing the land, i.e. deforesting it to plant crops. In French speaking African countries, this is the clause of ''*mise en valeur*'' (development of the land) that can be found in almost all land tenure codes. Reforming such land tenure codes to allow individuals, families and communities to claim property or collective tenure rights on the land they use, without being pushed to deforest in support of such claims, will be an important policy shift to encourage within national REDD+ strategies (Karsenty and Assembé, 2011).

Clarifying effective *management and exclusion rights* is a precondition for contracting and foreseeing possible PES for keeping the forest (Wunder, 2007; Kaimowitz, 2008). Protecting a forest requires an effective and, possibly, legal capacity to exclude outsiders (such as encroachers and illegal loggers) and to manage a given piece of forest land to ensure liability (fulfilment of contractual commitments). The right to alienate is contingent in such contexts, and would not be appropriate in situations where individual (family) rights to lands are embedded in communitarian rights. Contracting for PES on well identified territories with local dwellers will lead to *de facto* recognition of some property rights to the forest land (effective management and exclusion rights), the minimum basis for enforcing such contractual agreements. *De facto* recognition of key property rights will exacerbate the tension with the *de jure* public ownership and will call for land tenure reforms in countries where forests remain under state ownership. Such a dynamic does not need the unnecessary and risky process of creating tradable ''carbon rights''.

7. Conclusion

Carbon rights, understood here as title to carbon credits, have an odd status in the REDD+ debate. They are closely associated with the belief that REDD+ will generate (economic) ''rents'' – i.e. revenues largely exceeding the cost of the corresponding effort – and means framing the discussion in the terms of entitlement to a financial godsend. We suggest that, in an ''ideal'' REDD+ scheme, the possibility of obtaining rents in REDD+ would be very limited, given the idea underlying REDD+ itself (compensating for the opportunity costs of keeping forests) and the likelihood of continuing weak carbon prices and a reduction in public funding, in a context of escalating opportunity costs. In such an ''ideal'' scheme, REDD+ could unlock *benefits* associated with keeping the forest and various uses of it, but rarely provide ''rents''.

Indeed, the prospect for economic rents (the value of carbon credits beyond what is needed for covering all the costs needed to curb deforestation, including a normal remuneration for the investor) will be limited. This is because the price of avoided emissions (or ''carbon prices'') is likely to remain weak due to the bleak prospects for an inclusive international agreement for reducing dramatically greenhouse gases emissions. However, such rents could be created by (successful) strategic behaviours of setting convenient reference emission levels (''inflated baselines'') and by possible acceptance, for political reasons, of inappropriate rules (such as being remunerated for the full stock of carbon, dismissing the basic rule of additionality). In that sense, the carbon rights rhetoric is implicitly linked to rent-seeking, which is paradoxical, since these rights are often brandished in the name of social justice. In addition, carbon rights as title to carbon credits sanction a market-based and a project-based approach, both of which are controversial and are rejected by a large number of the civil society movements who support community and indigenous rights to forest land tenure.

Another interpretation of carbon rights is the right to benefit from the sale of carbon credits, which is a very different perspective. What is at stake in this case is *sharing benefits*, which is a traditional social issue when an economic

activity involves several partners, not primarily a legal one – even though the law can provide for mandatory distribution. Carbon rights can be interpreted as deriving from *conservation easements* on privately owned or community-controlled lands – another well-known framework of analysis. Compensating for easements is a useful framework for analysing PES, even though such easements do not need to be established on privately owned land: effective management and exclusion rights suffice. In this respect, the emphasis placed on carbon rights cannot serve as a substitute for land tenure reforms neither can it be an appropriate means for thinking about equity in the access of different rural communities to forest resources and public goods.

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