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## REVIEW

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### The Framework of REDD+ through the lens of CBD Natural Ecosystem Values

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#### Abstract

REDD+ is a legal instrument which aims to address emissions associated with deforestation and forest degradation in developing nations. Whilst REDD+ sets out to sequester carbon in a sustainable manner on paper, the framework has been subject to a wide range of critiques. This paper highlights the REDD+ regime from the perspective of biodiversity conservation, as it is often presumed that the framework comes with an automatic package of biodiversity co-benefits. Contrary to this statement, this paper finds that REDD+ breaches natural ecosystem values in key areas. The latter is a direct result of the inherent focus on forest ecosystems – which excludes other biodiverse habitat types such as peatlands or shrubs. Moreover, this paper finds a lacune within REDD+ with regard to rewilding policies. Additionally, pressing concerns are raised due to the wide State discretion and weak procedural obligations - which lead to the overstatement of biodiversity co-benefits of REDD+ projects. In turn, an amendment of the framework is required if monoculture plantations are to be permanently excluded under REDD+. A case study of the Juma Reserve in Brazil, and Central Kalimantan in Indonesia further highlight these complications.

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## The framework of REDD+ through the lens of CBD Natural Ecosystem Values

Niels Hoek

### 1 Introduction: REDD+ and Biodiversity

Natural ecosystems are under pressure on a global scale, with the majority of nature significantly altered by human drivers.<sup>1</sup> This is of concern, as ecosystems provide a plethora of ecosystem services - such as disease prevention, the regulation of floods, and nutrient cycling – all of which are vital. However, one ecosystem service has caught the attention of both scientists and policymakers in particular. Indeed, from the perspective of halting the climate crisis, healthy ecosystems are a crucial mitigation tool due to the associated carbon sequestration of natural habitats. It is estimated that deforestation accounts for a staggering 2.1 billion tons of CO<sub>2</sub> released into the atmosphere annually.<sup>2</sup> Meanwhile, the decline of natural habitats is speeding up as opposed to slowing down - with predictions showing that humanity soon will use up its carbon budget to prevent a 1.5 °C rise in global temperatures.<sup>3</sup> With these issues in mind, preserving carbon sinks in order to mitigate the effects of climate change has long been considered a priority by the international community – giving shape to a critical legal instrument under the UN Framework Convention on Climate Change (UNFCCC). Namely, ‘Reducing Emissions from Deforestation in Developing Countries’ (REDD).

This framework was adopted at the COP 9 of the UNFCCC, which took place in 2003. The aim of REDD(+) was, and still is, to provide a financial incentive for developing countries to maintain and restore their respective forest ecosystems.<sup>4</sup> The expectations of this new framework were high as a large part of the Earth’s total mitigation potential is located in the tropics of developing nations.<sup>5</sup> In short, the framework was marketed as an easy, cheap and effective mitigation tool.<sup>6</sup> Instead, critics have voiced the opposite: REDD(+) has been expensive, complex and its results can be put into question.<sup>7</sup> This caused the instrument to evolve over time. Presently, the updated REDD+ is a more inclusive framework which values sustainable development alongside mitigation objectives.<sup>8</sup> Moreover, it has seen renewed attention as of 2021 due to the adoption of the Declaration on Forests and Land-use at COP 26. Said Declaration contains a pledge of 141 States to strengthen efforts

to: “commit to working collectively to halt and reverse forest loss and land degradation by 2030 while delivering sustainable development”.<sup>9</sup>

However, this tardy evolution of REDD+ through COP decisions raises numerous questions, especially with regard to the contribution of the REDD+ framework to biodiversity conservation and/or restoration. In other words, there are legitimate doubts whether biodiversity goals are effectively pursued in the REDD+ framework, and its affiliated projects. For example, pressing concerns have been raised in the literature, as low-carbon ecological hotspots (such as biodiverse grasslands mixed with forestry) remain undervalued within REDD+.<sup>10</sup> Moreover, whilst monoculture plantations, such as eucalyptus or palm, might lead to some carbon sequestration, the impacts of these projects on biodiversity are not the least bit impressive.<sup>11</sup> Another potential criticism is that REDD+ focusses (as the name implies) on forest ecosystems whilst disregarding other habitat types such as shrublands, peat swamps, tropical grasslands and savannas. With these problems in mind, the REDD+ framework can be compared with norms derived from the Convention on Biological Diversity (from hereon: CBD).<sup>12</sup> In turn, the concept of natural ecosystem values will be used in order to evaluate the potential biodiversity co-benefits of the updated REDD+ framework. The central question of this paper is the following: does the UNFCCC REDD+ framework breach natural ecosystem values as derived from the Convention of Biological Diversity?

In section 2, the evolution of REDD+ through decisions taken by the UNFCCC Conference of Parties is laid out. Once this has become clear, the following section 3 will define the concept of natural ecosystem values as derived from the CBD. In section 4, the legal framework of REDD+ is compared with said values in order to highlight potential frictions. This section includes both a critical analysis of the theoretical framework, as well as a case study on two REDD+ projects. Lastly, section 4 contains a brief summary of the findings of this paper.

### 2 The Evolution of REDD+

The instrument ‘REDD+’ cannot be found *verbatim* in the legal text of the UNFCCC. As a result, the REDD+ framework is considered a complex regime,

<sup>1</sup> IPBES, 2019.

<sup>2</sup> Pearson et al., 2017, p. 12.

<sup>3</sup> MCC, 2021; IPBES 2021.

<sup>4</sup> Denier et al., 2014, p. 5.

<sup>5</sup> Angelsen et al., 2018, p. 74.

<sup>6</sup> Brockhaus and Angelsen, 2012, p. 33.

<sup>7</sup> Matthews et al., 2014, p. 920.

<sup>8</sup> Lima et al., 2017, p. 591.

<sup>9</sup> United Nations Declaration on Forests and Land Use, 2021.

<sup>10</sup> Bayrak and Marafa, 2016, p. 14.

<sup>11</sup> Yuanyuan et al., 2018.

<sup>12</sup> Convention on Biological Diversity, 1992.

which has evolved through numerous decisions taken by the UNFCCC Conference of Parties. This section reviews how REDD+ has evolved with regard to biodiversity markers and safeguards. This is relevant in order to determine whether the updated REDD+ framework has (sufficiently) addressed biodiversity related concerns. The scope of this section will be narrowed down to the most influential decisions, discussed in chronological order.

REDD+ started out as a relatively simple framework focused on reducing emissions from deforestation in developing countries (REDD).<sup>13</sup> Whilst the adoption of said instrument was praised throughout the international community, developing countries raised the issue that REDD did not cover forest degradation, nor did it have a policy of sustainable management.<sup>14</sup> Therefore, 'REDD' was broadened to 'REDD+' at COP 13 (which took place in 2007), in order to include forest degradation and sustainable development, in both name and legal text. The subsequent Cancun Agreement adopted in 2010 strengthened this new-found sustainable approach.<sup>15</sup> Said agreement was crucial with regard to biodiversity conservation due to newly introduced safeguards – which provided a solid framework aimed at maintaining the 'plus' in REDD+.<sup>16</sup>

In short, paragraph 70 of the Cancun Agreement is a baseline for all actions taken under the umbrella of the framework. For example, projects can relate to the sustainable management of forests, as well as the enhancement of forest carbon stocks. It has to be stressed that while the participation of developing nations is voluntary, once commitments are made in the context of paragraph 70 - the safeguards become legally binding. Indeed, Appendix I of the Cancun Agreement calls for actions under paragraph 70 to be consistent with the conservation of environmental integrity. Additionally, sustainable management should be promoted under REDD+.<sup>17</sup> And lastly, projects are required to “*create incentives to protect natural forests, biodiversity and ecosystem services*”.<sup>18</sup> These norms are binding requirements which supplement the original framework.<sup>19</sup> Due to the introduction of the aforementioned safeguards, the Cancun Agreement has contributed to biodiversity conservation within REDD+ on paper. However, various technical rules were still unclear at the time of its drafting – especially with regard to how these safeguards would be monitored and enforced.

These technicalities were later finalized in the Warsaw Agreement, adopted in 2013.<sup>20</sup> This Agreement meant to provide a structure for the REDD+ mechanism, with additional reporting requirements and funding details relevant for the implementation of the Cancun safeguards.<sup>21</sup> As a result of this Agreement, developing nations are obligated to provide an extensive summary on the actions undertaken within REDD+ projects. This is a hard condition before result-based payments can be received.<sup>22</sup> It is relevant to state that all safeguards mentioned in the Cancun Agreement need to be addressed in this summary, from sustainable forestry to environmental integrity.<sup>23</sup> Furthermore, these reports must be updated at a frequent interval.<sup>24</sup> Whilst the latter appears to be a robust regime, REDD+ does not require independent reporting. Rather, transparency is 'requested' from participating developing nations. The enforcement of norms such as sustainable management can be deemed limited – as the majority of the provisions within the Warsaw Agreement consists of soft legal language. For example, contracting parties are merely 'encouraged' to identify drivers of deforestation. The last issue to be mentioned in this context, is that the Warsaw Agreement did not introduce adequate funding – meaning a dead tree might still be more valuable than a living one.<sup>25</sup>

In 2015, the lack of funding was (partly) tackled through the adoption of the Paris Agreement at COP 21. The Paris Agreement reiterated the need for parties to “*implement and support REDD+ activities and projects*”.<sup>26</sup> This led to additional attention for the REDD+ programme, as countries can utilise investments in REDD+ projects as part of their Nationally Determined Contributions (NDCs).<sup>27</sup> In turn, States such as Norway and Germany have pledged billions in financial aid towards REDD+.<sup>28</sup> Furthermore, the Paris Agreement also set out coordination across instruments – which provides a basis for further regime interactions between the CBD and REDD+.<sup>29</sup> This has also been addressed by the CBD's Conference of Parties, as Decision XI/19 determines that “*REDD+ actions and biodiversity conservation actions shall be consistent with each other*”.<sup>30</sup> In sum, the Paris agreement furthered the

<sup>13</sup> Godoy, 2016, p. 136.

<sup>14</sup> Matsumoto, 2019, p. 2.

<sup>15</sup> See Cancun Agreement to the United Nations Framework Convention on Climate Change, 2010, COP16/Decision 15; Godoy, 2016, p. 137.

<sup>16</sup> *Ibid.*, 2016, p. 137.

<sup>17</sup> Cancun Agreement to the United Nations Framework Convention on Climate Change, 2010, COP16/Decision 15.

<sup>18</sup> UNFCCC, COP16/Decision 15.

<sup>19</sup> RECOFTC, 2011, p. 14.

<sup>20</sup> Warsaw Agreement to the United Nations Framework Convention on Climate Change, 2013, COP19/Decision 19; Angelsen, 2015, p. 406.

<sup>21</sup> *Ibid.*, 2015, p. 406.

<sup>22</sup> Warsaw Agreement to the United Nations Framework Convention on Climate Change, 2013, COP19/Decision 19.

<sup>23</sup> Matsumoto, 2019, p. 5.

<sup>24</sup> *Ibid.*, 2019, p. 5.

<sup>25</sup> Paris Agreement to the United Nations Framework Convention on Climate Change, 2015; Angelsen, 2015, p. 406.

<sup>26</sup> Matsumoto, 2019, p. 5.

<sup>27</sup> EMP, 2015.

<sup>28</sup> Barrett and Goldstein, 2015.

<sup>29</sup> Verschuuren, 2020, p. 186.

<sup>30</sup> Morgera and Tsioumani, 2012, p. 300.

basis for regime interactions and tackled funding issues – albeit to a limited degree.

The last relevant mention is COP 26 which took place in Glasgow in 2021. This COP has provided another potential financial boost for REDD+ through the Global Forest Finance Pledge, with the specific goal “to halt and reverse forest loss and land degradation by 2030”.<sup>31</sup> There is criticism in this regard from environmentalists, as these investments are most likely dwarfed by the investment in activities which lead to deforestation in the first place.<sup>32</sup> However, the pledges are indicative of a continued movement for the protection of forest ecosystems.

In sum, various decisions and agreements have built a complex framework. The Cancun and Warsaw Agreements have been at the core of REDD+ development, with later decisions tackling funding issues. Having reviewed the substantive and procedural elements of REDD+, the next section will define the concept of natural ecosystem values as found within the Convention of Biological Diversity, which can guide a normative assessment of REDD+.

### 3 Convention of Biological Diversity: Natural Ecosystem Values

This paper has established that there is a newfound focus on biodiversity within the REDD+ framework, as of the Cancun Agreement. Before it is possible to conclude whether REDD+ is in line with the Convention on Biological Diversity – the parameters and scope of this comparison will need to be defined. For the purposes of this research the scope shall be limited to natural ecosystem values. In other words, norms and provisions which seek to promote ecosystem services, and species richness.

The first norm which is fundamental for the concept of natural ecosystem values can be found in art. 8(d) CBD. It states that Contracting Parties are, as far as possible and appropriate, obliged to promote the protection of “ecosystems, natural habitats and the maintenance of viable populations of species in natural surroundings”. Additionally, ecosystems are defined in art. 2 CBD as “a dynamic complex of plant and animal communities interacting as a functional unit”. Furthermore, habitats are defined as “a place or type of site where an organism or population naturally occurs”. And lastly, art. 8(j) CBD states that alien species need to be prevented whilst native species are to be restored. In other words, the Convention prioritizes a varied environment which can be deemed natural, with limited (unsustainable) interventions.

Additional support for the concept of natural ecosystem values can be found in resolutions adopted by the CBD Conference of Parties. More precisely, the

CBD COP has adopted an ‘ecosystem-based approach’.<sup>33</sup> This approach is a strategy with regard to “integrated management, in order to balance sustainable use and conservation in an equitable way”. Furthermore, it declared that the conservation of ecosystems “should be a priority target in order to contain its structure and functioning”. Going forward in this research, it is necessary to link these ecosystem-based norms and formulate the parameters of natural ecosystem values. In short, natural ecosystem values are summarized as follows:

1. Ecosystems are complex and diverse in nature, consisting of various species acting as a functional unit. COP decisions have later emphasized that its structure and functioning should be maintained.
2. Natural habitats imply limited human intervention only permitting sustainable use. Organisms and populations should ‘naturally occur’.
3. Natural surroundings are to be protected, alien species and organisms are prevented, and their native counterparts restored.

It is important to stress that the latter categorization is by no means exhaustive. However, the concept of natural ecosystem values will be essential in order to evaluate the REDD+ framework in the following sections.

#### 3.1 REDD+ compared to Natural Ecosystem Values

Having discussed the concept of natural ecosystem values, it is time to compare this notion with the REDD+ framework, in order to determine whether it complies with said values. First and foremost, REDD+ has moved considerably towards the concept of natural ecosystem values since its initial adoption. Appendix I of the Cancun Agreement has been essential by introducing safeguards aimed at biodiversity conservation, as REDD+ activities need to be consistent with the “conservation of natural forests, biodiversity and environmental integrity in order to stimulate sustainable development of forests”.<sup>34</sup> In turn, the Cancun Agreement promotes incentives (on paper) which protect existing natural forests in developing countries – meaning complex ecosystems can persist with limited human intervention.<sup>35</sup> It is clear that the in situ protection of ecosystems, where they naturally occur, does not breach the concept of natural ecosystem values as identified in the previous section. However, the Cancun Agreement has not solved the issue in its entirety. Several clashes between the framework and biodiversity conservation can be noted.

<sup>31</sup> United Nations Declaration on Forests and Land Use, 2021.

<sup>32</sup> Global witness, 2021.

<sup>33</sup> Convention on Biological Diversity, COP5/Decision V/6, 2000.

<sup>34</sup> Cancun Agreement to the United Nations Framework Convention on Climate Change, 2010, COP16/Decision 15.

<sup>35</sup> O’Sills et al., 2014, p. 67.

The first clash to be identified is that there is limited to no attention for rewilding within the REDD+ framework. It has long been established that ecosystems have the ability to recover without human intervention.<sup>36</sup> Tree planting is often considered ‘a silver bullet’ in the fight against climate change with automatic biodiversity co-benefits – due to the conversion of degraded land to forest ecosystems. However, this statement can be questioned.<sup>37</sup> Instead, the rewilding of deserted (agricultural) landscapes is identified as one of the best possible pathways towards achieving the goals of the post-2020 CBD framework.<sup>38</sup> According to the concept of natural ecosystem values, there is a need for limited human intervention as populations and organisms can naturally occur. Planting a vast number of (monoculture) trees under REDD+ is counterproductive in this regard. The latter crowds out other native vegetation which play a large role in maintaining ecosystems as a functional unit. Whilst rewilding is not excluded within individual REDD+ projects, it does not explicitly follow from the legal framework. In sum, in order to safeguard natural ecosystems and further biodiversity restoration - the rewilding of degraded ecosystems is to be given a higher priority. This is a solid alternative to planting a disproportional number of trees, which can lead to a monoculture reality.

Moving on from this issue, a second clash can be noted. In short, this clash arises from the inherent focus on forest ecosystems within the REDD+ framework. This is problematic given a plethora of ecosystems provide mitigation possibilities.<sup>39</sup> For example, grasslands and peatlands are powerful carbon stocks and sinks - yet these habitat types fall outside the scope of the REDD+ framework.<sup>40</sup> According to the concept of natural ecosystem values, habitats should be formed and maintained where they naturally occur. REDD+ poses a real risk with regard to this value.<sup>41</sup> Indeed, the idea that trees represent a monetary value is noble. However, there are other habitat types worthy of protection from the perspective of mitigation and biodiversity conservation. There is a risk that developing countries will favour forests as opposed to naturally occurring wildlife, also known as leakage.<sup>42</sup> It can be noted that his problem is not limited to the RED+ framework, and applies to all forms of *in situ* protection. However, the monetary value associated with forest ecosystems carries additional risks due to the incentive for developing nations to gather the highest number of

carbon credits possible. To counter this issue, and to comply with the concept of natural ecosystem values, there is a strong argument to be made that mitigation should be financially rewarded when countries maintain a broad range of diverse, healthy and natural ecosystems as opposed to a limited number of forest ecosystems.

With this issue in mind, it is time to explore a third clash. This clash relates to the lack of a clear definition of a ‘natural forest’ within the REDD+ framework. Whilst ‘natural forests’ is a prominent term used throughout the entire legal framework, developing nations have interpreted the term differently. This is not a surprise – as during COP 19 of the UNFCCC (which took place in 2013) it was set out that national governments can define the parameters of a ‘natural forest’ according to their own national monitoring system.<sup>43</sup> As a result, States such as Malaysia include monoculture tree plantations in their forest analyses.<sup>44</sup> This discretion is cause for concern as monoculture plantations cannot be considered ecosystems under the CBD. Plantations are not complex, nor are they a functional unit. Moreover, the trees used in these plantations are often invasive alien species such as the eucalyptus tree or palm tree – straying far from the CBD’s natural species and natural surroundings criteria. And lastly, the soil degradation associated with monoculture ‘forests’ and the frequent deployment of fertilizers within this context, means that biodiversity loss is often accompanied with an overstated carbon uptake.<sup>45</sup> Sadly, the latter has been documented in various REDD+ projects, breaching natural ecosystem values in the process.

The final clash to be noted is procedural in nature. A review of more than 80 REDD+ projects found that whilst most mentioned biodiversity, the reports submitted by developing nations lacked measurable components.<sup>46</sup> In other words, these implementation reports did not specify how biodiversity levels were affected by the project in question. This is due to the fact that the Warsaw Agreement leaves a wide range of discretion to developing nations with regard to enforcement, transparency and biodiversity measurements. For example, whilst the legal text of REDD+ calls for actions taken under the framework to be consistent with ‘environmental integrity’, it is left up to developing nations to report whether these norms have been met.<sup>47</sup> To conclude, even when safeguards show potential - implementation issues, weak monitoring and overstated biodiversity results

<sup>36</sup> Perino et al., 2019, p. 367.

<sup>37</sup> Holl and Brancalion, 2020.

<sup>38</sup> Perino et al., 2019, p. 367.

<sup>39</sup> Leifeld and Menichetti, 2018, p. 172.

<sup>40</sup> FAO, 2009, p. 2; Batjes, 1998, p. 234. Howard et al., 2017, p. 8.

<sup>41</sup> Bayrak and Marafa, 2016, p. 14.

<sup>42</sup> *Ibid*, 2016, p. 14.

<sup>43</sup> *Ibid*, 2016, p. 14.

<sup>44</sup> Sax, 2019, p. 2.

<sup>45</sup> Warsaw Agreement to the United Nations Framework Convention on Climate Change, 2013, COP19/Decision 19; The Economist, 2019.

<sup>46</sup> Bayrak, Marafa, 2016, p. 14.

<sup>47</sup> Cancun Agreement to the United Nations Framework Convention on Climate Change, 2010.

greatly frustrate the outcome for biodiversity conservation and/or restoration under REDD+.<sup>48</sup>

In sum, the framework does not appear to be fully in line with the concept of natural ecosystem values. The question is whether this conclusion also reflects the situation ‘on the ground’. Therefore, in the following section this paper will review two very different REDD+ projects.

### 3.2 REDD+ Projects and Natural Ecosystem Values

Having discussed discrepancies between natural ecosystem values and the current REDD+ framework, it is time to analyse whether natural ecosystem values are breached in two specific cases. Namely, the Central Kalimantan Rainforest in Indonesia, and the Juma Reserve in Brazil. These case studies are relevant as there are voices within the literature which have questioned whether general assumptions about REDD+ as a single monolithic entity can be considered fruitful due to the complexities of various REDD+ projects.<sup>49</sup> In turn, this paper will zoom in on two specific projects which are chosen due to their vastly different governmental structures and geographical locations.<sup>50</sup>

### 3.3 Central Kalimantan: REDD+ in Indonesia

In December 2010, Central Kalimantan was assigned to be the pilot province for the implementation of REDD+ in Indonesia.<sup>51</sup> The Indonesian province is home to charismatic species such as the orangutan and the gibbon. Unfortunately, the area lost a significant portion of its biodiversity, as twenty-three oil palm companies are responsible for disrupting 300,000 hectares of old growth rainforests.<sup>52</sup> Moreover, various other drivers of change can be identified which have fueled the decline of this reserve, from large rice plantations to increased pressure from infrastructure.<sup>53</sup> In other words, Central Kalimantan is the ideal location to facilitate ecosystem restoration in line with the CBD’s natural ecosystem values.

In order to assess the success of this project, the implementation report of the Indonesian government is a clear starting point. Indeed, in their National Communication Report Indonesia claims that it is one of the few ‘mega-biodiversity’ countries in the world.<sup>54</sup> In the same report, Indonesia assumes that land-based mitigation actions under REDD+ will automatically lead to biodiversity conservation as a

co-benefit.<sup>55</sup> These assumptions can be put into question when one reviews the project objectively. One study found that tree cover loss had not been halted in Central Kalimantan as a result of REDD+.<sup>56</sup> Instead, the project – at best – had a neutral effect on biodiversity. However, a negative effect is equally possible as REDD+ lead to substantial tree cover loss in the initial years of the project.<sup>57</sup> The reason for an increase in deforestation activities in the early years can be attributed to people anticipating enforcement under REDD+ to be more stringent.<sup>58</sup> Thus, the conversion of forests into infrastructure and plantations is sped up as opposed to slowed down. To complicate matters, as the project was implemented - deforestation continued ‘business as usual’. Operational permits for plantations and mining activities were continuously granted by Indonesian authorities.<sup>59</sup> On top of that, it has been reported that a large portion of REDD+ funds went towards economic development rather than reducing deforestation, with examples ranging from mushroom cultivation to rubber growing.<sup>60</sup>

Going back to the question whether natural ecosystem values have been breached in Central Kalimantan, the answer can be the affirmative. The structure of complex and functional ecosystems has not been maintained in Central Kalimantan, as deforestation continued ‘business as usual’. Furthermore, the substantial increase of various plantations – from rubber to palm - under REDD+ is not in line with the natural habitat and surroundings criteria. Whilst these findings seem grim, it is important to note that this is merely the result of one REDD+ project. Therefore, it is relevant to review a vastly different project, on the other end of the globe.

### 3.4 Juma Sustainable Development Reserve: REDD+ in Brazil

This section will analyse a Brazilian REDD+ project. While many such projects exist, the Juma reserve is a relevant case due to it being located in the well-known Bolsa Floresta protected area, within the legal Amazon rainforest. This area is highly protected and the deforestation rate is relatively low compared to other regions.<sup>61</sup> However, there are internal and external deforestation pressures to be noted, such as small-scale agriculture and looming highway expansions.<sup>62</sup> In spite of this, the Juma reserve appears to be a REDD+ success story. The remaining question

<sup>48</sup> Panfil and Harvey, 2016, p. 146.

<sup>49</sup> Andres et al., 2020, p. 1.

<sup>50</sup> See Duchelle, 2018, p. 134-140. Unfortunately, there is little research into the biodiversity co-benefits associated with REDD+ projects. However, biodiversity-related claims made by governments can be contrasted with the situation observed in natural reserves.

<sup>51</sup> FPR, 2011.

<sup>52</sup> *Ibid*, 2011, p. 3.

<sup>53</sup> *Ibid*, 2011, p. 16.

<sup>54</sup> Marsipatin, 2018, p. 143.

<sup>55</sup> *Ibid*, 2018, p. 143.

<sup>56</sup> Jagger and Rana, 2017, p. 66.

<sup>57</sup> *Ibid*, 2017, p. 66.

<sup>58</sup> *Ibid*, 2017, p. 66.

<sup>59</sup> Lestari, 2019, p. 3.

<sup>60</sup> *Ibid*, 2019, p. 3.

<sup>61</sup> Cisneros, 2019, p. 8.

<sup>62</sup> Fernanda, 2018, p. 485.

is whether the project can live up to the concept of natural ecosystem values.

First and foremost, the Juma Reserve has established a strictly protected area. Within this reserve, the conservation of ecosystem services is encouraged through sustainable use, as forest communities are provided financial incentives to engage in conservation activities and measures.<sup>63</sup> Residents sign a zero-deforestation commitment, which in turn entitles them to house-hold payments. A positive note with regard to biodiversity conservation is that this project goes further than the Cancun safeguards, as it seeks to deliver 'site specific' biodiversity boosts.<sup>64</sup> Another positive measure is the attention for climate adaptation within the project. A prominent example is the construction of 'fire roads' - which are meant to regulate forest fires, halting future biodiversity loss.<sup>65</sup>

However, there are concerns with regard to the project. Firstly, the problem of 'biodiversity leakage' has been identified. This entails that anthropogenic pressure is lower inside said reserve, which leads to increased pressure on neighbouring (biologically diverse) habitats.<sup>66</sup> Whilst this is an issue which applies to *in situ* protection more generally – the funding associated with REDD+ is directly aimed at preserving carbon stocks. Therefore, wide-spread leakage has the potential to limit the impact of the framework substantially. This is especially the case when one takes into account the prevalent selection bias associated with these projects. This phenomenon has also been observed in relation to the Juma reserve, as the World Bank has concluded that the reserve most likely would have survived without REDD+ intervention. Without a doubt, the same cannot be said with regard to highly threatened natural habitats in the vicinity.<sup>67</sup>

With this in mind, it is possible to review whether natural ecosystem values have been met through the implementation of REDD+ in this specific site. In short, the Juma reserve consists of a natural, complex and diverse ecosystem - now strictly protected. The latter is in perfect harmony with the concept of natural ecosystem values, as natural surroundings are maintained. Moreover, at the time of writing, no reports seem to indicate that large sets of alien species (or plantations) have been introduced in the reserve.

However, there are issues due to the previously identified biodiversity leakages and selection bias.<sup>68</sup> Whilst this problem is not unique to REDD+, natural ecosystem values can be breached indirectly. Therefore, the limited funds of REDD+ are better

suited towards to contribute to the restoration of threatened (forest and non-forest) ecosystems, which are at a greater risk of losing their biodiversity and mitigation potential.

#### 4 Conclusion: from biodiversity co-benefits to full-fledged benefits

This paper researched how the UNFCCC REDD+ framework compares to the concept of natural ecosystem values, as derived from the CBD. First, it can be noted that since its adoption in 2003, the REDD+ framework has made some progress with regard to said values. The latter is due to the introduction of the Cancun safeguards and subsequent Warsaw reporting requirements. However, REDD+ projects have not provided a 'silver bullet' with regard to climate mitigation, nor has it halted the loss of biodiversity in developing nations.<sup>69</sup> Instead, key problems such as the overstatement of results and continued exploitation of designated forests are a direct result of the wide state discretion and weak procedural obligations found within the framework. Moreover, whilst biodiversity co-benefits should, in principle, be incorporated within REDD+ projects – implementation reports by developing nations lack measurable indicators, meaning the effectiveness of the regime with regard to biodiversity conservation and/or restoration is highly questionable.

Secondly, it can be concluded that there is an added complexity within REDD+, as individual projects differ tremendously. The latter has been verified by the two case studies in the Juma Reserve and Central Kalimantan. However, going forward, it is key that the much-quoted 'biodiversity co-benefits' of REDD+ are transformed into full-fledged benefits. Based on the findings of this paper, a few key recommendations can be made which have the potential to safeguard natural ecosystem values within all projects under the umbrella of the REDD+ framework, regardless of their geographical location.

In short, as REDD+ is implemented globally - there is a clear need for binding checks and balances, enforceable transparency and measurable biodiversity goals. The latter requires an amendment of the softly worded Warsaw Agreement. Additionally, REDD+ funds should only be allocated, provided it can be independently verified that developing nations complied with the Cancun safeguards. Furthermore, in order to increase the impact of REDD+ on biodiversity conservation, its scope can (and should) be broadened to include various other habitats such as e.g., grasslands, peatlands and tropical savannas. And lastly, the inclusion of rewilding policies under the REDD+ framework has the potential to further

<sup>63</sup> Bakkegaard and Wunder, 2014, p. 56.

<sup>64</sup> Potts et al., 2013, p. 2.

<sup>65</sup> Rival, 2013, p. 17.

<sup>66</sup> See Cisneros, 2019, p. 8; Yanai et al., 2012, p. 88.

<sup>67</sup> *Ibid*, 2019, p. 8; *ibid*, 2012, p. 88.

<sup>68</sup> *Ibid*, 2019, p. 8; *ibid*, 2012, p. 88.

<sup>69</sup> Especially when the external funding of deforestation in developing countries continues 'business as usual'.

biodiversity co-benefits. This approach diverts from the *status quo* of blindly planting trees to gather carbon credits. In the end, urgent reforms are needed – especially with the recent knowledge that natural ecosystems are approaching tipping points from which recovery is either significantly harder, or impossible altogether.

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## elni

*In many countries lawyers are working on aspects of environmental law, often as part of environmental initiatives and organisations or as legislators. However, they generally have limited contact with other lawyers abroad, in spite of the fact that such contact and communication is vital for the successful and effective implementation of environmental law.*

*Therefore, a group of lawyers from various countries decided to initiate the Environmental Law Network International (elni) in 1990 to promote international communication and cooperation worldwide. elni is a registered non-profit association under German Law.*

*elni coordinates a number of different activities in order to facilitate the communication and connections of those interested in environmental law around the world.*

### Coordinating Bureau

Three organisations currently share the organisational work of the network: Öko-Institut, Technische Hochschule Bingen (TH Bingen) and sofia, the Society for Institutional Analysis, located at the Darmstadt University of Applied Sciences. The person of contact is Prof. Dr. Roller at TH Bingen.

### elni Review

The elni Review is an English language law review. It publishes articles on environmental law, focussing on European and international environmental law as well as recent developments in the EU Member States. elni encourages its members to submit articles to the elni Review ([info@elni.org](mailto:info@elni.org)) in order to support and further the exchange and sharing of experiences with other members.

The first issue of the elni Review was published in 2001. It replaced the elni Newsletter, which was released in 1995 for the first time.

The elni Review is published by Öko-Institut, TH Bingen and sofia.

### elni Conferences and Fora

elni conferences and fora are a core element of the network. They provide scientific input and the possibility for discussion on a relevant subject of environmental law and policy for international experts. The aim is to gather together scientists, policy makers and young researches, providing them with the opportunity to exchange views and information as well as to develop new perspectives.

The aim of the elni fora initiative is to bring together, on a convivial basis and in a seminar-sized group, environmental lawyers living or working in the Brussels area, who are interested in sharing and discussing views on specific topics related to environmental law and policies.

### Publications series

elni publishes a series of books entitled "Publications of the Environmental Law Network International". Each volume contains papers by various authors on a particular theme in environmental law and in some cases is based on the proceedings of the annual conference.

### elni Website: elni.org

The elni website [www.elni.org](http://www.elni.org) contains news about the network. The members have the opportunity to submit information on interesting events and recent studies on environmental law issues. An index of articles provides an overview of the elni Review publications. Past issues are downloadable online free of charge.

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