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## Missing the forest for the data? Conflicting valuations of the forest and cultivable lands

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1 **Missing the forest for the data?**

2 **Conflicting valuations of the forest and cultivable lands.**

3

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24 **Abstract**

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26 Southeast Asia, Golden Agri-Resources (GAR) – a major actor in the palm oil sector –  
27 adopted a *zero-deforestation policy*. The implementation of this policy raised a simple, albeit  
28 tricky, question: what is a forest? In response, Greenpeace, GAR and a consultancy firm  
29 developed a methodology for forest classification called the High Carbon Stock (HCS)  
30 Approach. Employing a vegetation classification based primarily on a threshold of carbon  
31 sequestration, the method identifies which forested zones to protect from conversion to  
32 agriculture. While currently gaining resonance in the realm of sustainability standards, its  
33 implementation in Indonesia and Liberia encountered resistance and criticism by rural  
34 dwellers and social NGOs. How did HCS advocates integrate local peoples' concerns,  
35 interests and claims to compose commonality? By analysing the HCS methodology's content,  
36 implementation and progressive adaptation, this article shows how HCS advocates favoured a  
37 specific mode of composition: one that fits the *liberal grammar* and that has specific  
38 implications on the valuation of forest and cultivable lands. The HCS approach is thus more  
39 than a data collection tool; it encapsulates and reinforces a particular vision of the  
40 environment and how people should relate to it.

41 **Keywords**

42 Environmental valuation; pragmatic sociology; forest conservation; oil palm; High Carbon  
43 Stock; local communities.

44 **Highlights**

- 45 • We analyse how the HCS advocates endeavoured to integrate local communities’  
46 concerns.
- 47 • HCS reframes environmental protection as an optimisation problem.
- 48 • Focusing on conflicting land uses, HCS obfuscates conflicting forms of valuations of  
49 the environment.
- 50 • HCS set-asides rural dwellers’ forms of valuation and their local ecologies.

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## 33        **Introduction**

34    Concerned with rapid tropical deforestation caused by the expansion of oil palm plantations,  
35    in 2010, Greenpeace launched a campaign targeting the key European customers of a major  
36    palm oil producer - Golden Agri Resources (GAR). A few months later, GAR announced its  
37    Forest Conservation Policy, which included a zero-deforestation pledge. Its implementation  
38    raised a simple, albeit tricky, question: what is a forest? To resolve this question, GAR –  
39    together with Greenpeace and a consultancy firm called The Forest Trust (TFT) – developed a  
40    methodology for forest classification called the High Carbon Stock (HCS) approach.  
41    Classifying vegetation primarily by the level of carbon sequestration, this method identifies  
42    which forest areas to protect from agricultural conversion.

43    The HCS tool has been gaining attention beyond the palm oil sector, namely among  
44    companies facing deforestation issues in pulp and paper, soybean and cocoa. The HCS  
45    steering group is lobbying to include this approach in several standards, such as those of the  
46    Roundtable on Sustainable Palm Oil (RSPO), the Roundtable on Responsible Soy (RTRS),  
47    the Forest Stewardship Council (FSC) and REDD+. In a recent resolution, the European  
48    Parliament named it a key methodology to combat the tropical deforestation caused by oil  
49    palm expansion<sup>1</sup>; and several countries are considering it as part of implementing the  
50    Amsterdam declaration, signed by six European countries in support of private commitments  
51    to eliminating deforestation from their supply chains.

52    HCS advocates present this method as “providing practical, scientifically robust and cost-  
53    effective guidance for distinguishing and then protecting viable forest areas” (Rosoman *et al.*,  
54    2017, Module 1 p. 5). Yet, it is far from being a neutral data collection tool, as highlighted by

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<sup>1</sup> European Parliament resolution of 4 April 2017 on palm oil and deforestation of rainforests (2016/2222(INI)).

55 the criticism emerging from its pilot implementations in Indonesia and Liberia. Social NGOs  
56 disapproved of how certain lands being used by local populations, such as early fallow lands,  
57 were designated “degraded” on which oil palm “could be developed” or, in the case of older  
58 fallow lands, classified as HCS forest to be protected. They argued that HCS categories were  
59 imposed on people, ignoring their systems of land use, land ownership and land classification;  
60 and, in turn, affecting their livelihoods (Colchester *et al.*, 2014; Colchester & Anderson, 2015).  
61 Environmental NGOs, palm oil companies, local populations and social NGOs have different  
62 views on how to define, identify and value forests and cultivable lands. How have HCS  
63 advocates attempted to create commonality and deal with differences? How did they integrate  
64 locals’ concerns, interests and views? Although initially designed without the participation of  
65 social NGOs and local communities, the HCS tool was progressively adapted in response to  
66 the voiced criticisms. In this article we explore the ways in which HCS advocates tried to  
67 integrate diverse types of knowledge and forms of valuation. For such an analysis, we turn to  
68 French pragmatic sociology and the notion of different “grammars of commonality in the  
69 plural” (Thévenot, 2015). We argue that these actors have privileged a liberal grammar,  
70 through which integration of differences occurs via negotiations, thereby dismissing some  
71 significant forms of valuation used by rural dwellers.

## 72 **1. Literature review and analytical framework**

### 73 *1.1. STS approaches to conflicting categories of environmental valuation*

74 Science and Technology Studies (STS) scholars have long scrutinised the ways in which  
75 scientific definitions, methodologies or categories are used in the formulation and  
76 implementation of public policies at the expense of alternative bodies of knowledge (e.g.  
77 Rajão, 2013). In the sub-field of environmental policies, STS have also been mobilised by a  
78 large body of work, frequently labelled as critical political ecology, which “builds on



79 advances in STS by seeking to indicate how supposedly apolitical scientific laws in fact  
80 reflect historic political and social relations” (Forsyth, 2001).

81 Scholars in this tradition have paid special attention to deforestation issues in different  
82 settings, such as in Sub-Saharan Africa (Fairhead & Leach, 1996; Robbins, 2003), Northern  
83 Africa (Davis, 2005), South-East Asia (Robbins, 2001; Forsyth & Walker, 2008) or the  
84 Amazon (Rajão & Vurdubakis, 2013). With respect to our topic, this literature yields two  
85 main results. First, it reveals the two key processes through which scientific explanations and  
86 categories are preferred to local ones in designing and implementing environmental policies.  
87 The first, well-illustrated by Rajao’s Amazonian analysis (2013), points to the fact that  
88 scientific representations better match policy-makers’ expectations. They can render an  
89 environmental problem *visible* – supposedly better than local accounts; they are  
90 *comprehensive* in that they are said to represent the whole situation; and they allow for  
91 *causality analysis*, showing deterministic links between a given factor and the environmental  
92 problem under scrutiny. Another process is detailed in Scott’s “Seeing like a State” (1998)  
93 and refers to the concept of *legibility*: that is, the fact that to govern natural things and  
94 people’s behaviours, rulers need to render them legible, i.e. create a simple representation  
95 which is not only graspable, but meanwhile alters the objects it so simply describes. On the  
96 contrary, local representations and categories are often considered too complex to allow for  
97 any legibility or control from afar.

98 The second result relates to the consequences such domination of scientific discourse has had,  
99 not only for social justice, but also for environmental degradation. This is the case in Morocco  
100 and Northern Africa where, as demonstrated by Davis (2005), false assumptions regarding  
101 forests have led to land dispossession and useless reforestation programmes. This is also true  
102 in the forest-savanna transition zone of Guinea, where Fairhead and Leach (1996) showed that

103 though local communities had long been blamed for the deforestation seen this last century,  
104 nearly three-quarters of the villages surveyed had instead contributed to reforesting the area.  
105 While these studies furthered the understanding of how scientific explanations tend to  
106 dominate and delegitimise local ones, they have revealed little in terms of how practitioners  
107 seek to integrate those diverse types of knowledge and the consequence of such compositions.  
108 Yet, one specificity of the HCS approach claimed by its supporters is that it relies on the  
109 combination of conservation sciences and participatory mapping (open to local knowledge) to  
110 define a land use plan. We therefore need to understand how actors having different modes of  
111 valuation for forests and cultivated lands have endeavoured to create commonality and deal  
112 with differences.

### 113 *1.2. Integrating conflicting modes of valuation: French pragmatic sociology*

114 To grapple with these issues, we turn to French pragmatic sociology. Thévenot, one of its  
115 founders, conceptualised different *grammars of commonality* to highlight the plural ways in  
116 which people create commonality and deal with differences, especially through two basic  
117 operations: communicating and integrating differences<sup>2</sup>. How do people share a concern with  
118 others? And how do they arrange differing voices to form a whole (which can be referred to  
119 as commonality)? This author identifies three different grammars of commonality: the  
120 grammar of *orders of worth*; the *liberal grammar of individuals*; and the grammar of *common*  
121 *affinities to common places* (Thévenot, 2014, 2015).

122 In the orders of worth grammar, communicating implies linking one's concerns with a  
123 specification of the common good. Difference is integrated via compromise between a  
124 plurality of justice principles. Formalizing a sense of what is just and unjust in practice, these

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<sup>2</sup> Which refers to "*composing difference*" in the archaic sense of settling a disagreement that results in the composition of a pluralist common good for the community (Thévenot, 2014).

125 plural justice principles characterise the common good and rely on different modes of  
126 valuation. Boltanski and Thévenot (2006 [1991]) identified six specific views of the common  
127 good with corresponding legitimate valuation modes: *market competition, industrial efficiency,*  
128 *fame, civic solidarity, domestic trust, and inspiration.* This framework implies that plural  
129 legitimate logics of valuation can be used beyond a strictly quantified definition of value  
130 (Centemeri, 2015). For example, nature can be publicly valued as patrimony (or heritage) in a  
131 domestic order, as an expression of wilderness (inspiration order), as a commodity (market  
132 order), or as a quantity of carbon (industrial/green order). In practice, the prevalence of some  
133 forms of valuation over other forms leads to invisibility problems when alternative valuations  
134 are neither revealed nor debated.

135 Turning now to another legitimate grammar of commonality, the liberal grammar involves a  
136 composition that comes about through negotiation. As conceptualised by Thévenot  
137 (2006, 2007), in this grammar, stakeholders seek to find a balance of interests; they are  
138 expected to communicate their concerns as a choice for options, framed as interests.  
139 Stakeholders express a functional and utility relationship with the environment, thereby  
140 attributing value depending on what is useful for the individual (Centemeri, 2015, p. 311).

141 Finally, the grammar of common affinities is based on the attachments, concerns and feelings  
142 that people directly invest in common places, making it more hospitable to intimate and  
143 familiar ways of relating to the environment. From this perspective, value hinges on it being a  
144 dwelled-in environment; it is a place where a person feels “at ease” and where memories are  
145 deposited. Through familiarization, a person forges intimate bonds with non-humans  
146 (Centemeri, 2015, p. 312). These attachments are valuable in a way that excludes  
147 commensuration, as “commensuration would imply considering these persons, objects and  
148 other entities of the environment as separate and equivalent to others” (Centemeri, 2015,  
149 p. 314).

150 This analytical framework is useful for understanding the power inequalities and (*in*)visibility  
151 issues arising from the imposition of specific valuation languages (Centemeri, 2015). This  
152 paper highlights two types of oppression: the first being a consequence of *formats of*  
153 *information*<sup>3</sup> (Thévenot, 1997) used for the general valuation, such as a carbon proxy and  
154 Geographic Information System (GIS) technologies; the second resulting from the prevalence  
155 of a specific grammar of commonality to deal with differences. For the latter, we will  
156 highlight the oppressions resulting from a favoured *liberal grammar*, where composition  
157 comes about through a negotiation between different land functions or *utilities*, over other  
158 forms of valuation relying on people's *attachments* and plural *orders of worth*.

## 159 **2. The palm oil controversy and the HCS methodology**

160 The oil palm expansion that primarily occurred in Malaysia and Indonesia (nearly 85 % of the  
161 world production) has depleted tropical forests (for Indonesia, Tsujino *et al.*, 2016) and  
162 severely impacted local populations (Colchester & Chao, 2013). Since the late 1990s and  
163 early 2000s, several civil society organisations have raised socio-environmental concerns over  
164 the agro-industrial development pathway. The RSPO emerged in 2004 as a multi-stakeholder  
165 initiative to create and implement a sustainability standard for palm oil (for a detailed account,  
166 see Nikoloyuk *et al.*, 2010; Cheyns 2011; Silva-Castañeda & Trussart, 2016). Despite – or  
167 because of – its success among major industrial actors, the standard has been criticised for not  
168 being able to properly protect tropical forests and local populations (e.g. Laurance *et al.*,  
169 2010; Silva-Castañeda, 2012; Greenpeace, 2013; Ruyschaert & Salles, 2014; Amnesty  
170 International, 2016).

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<sup>3</sup> Various valued ways of relating to the environment, ranging from very formalised knowledge to perceptual markers found in familiar surroundings (Thévenot, 1997).

171 Greenpeace has been especially critical of RSPO companies' poor environmental performance.  
172 In 2007, it released a report denouncing the impact of large-scale oil palm plantations on  
173 climate change which explicitly targeted the Singaporean Sinar Mas group, the owner of GAR  
174 (Greenpeace, 2007). The industry's responses falling short of Greenpeace's expectations, the  
175 NGO launched an aggressive campaign targeting GAR's major customers (Unilever, Procter  
176 & Gambler and Nestlé) three years later. A 2010 spot parodying Kit&Kat had tremendous  
177 impact on social networks and exerted vast public pressure on Nestlé. The day after its launch,  
178 Nestlé publicly announced that it would stop sourcing palm oil from GAR and two months  
179 later released new "Responsible Sourcing Guidelines". Shortly after, GAR accepted to enter  
180 into negotiations with Greenpeace to define a forest conservation policy based on an agreed-  
181 upon definition of a forest, that would come to be called a High Carbon Stock forest (for a  
182 detailed account, see Aubert *et al.*, 2016).

183 Mediating this initial negotiation between Greenpeace and GAR was the TFT, a Swiss not-  
184 for-profit that works with companies to improve their environmental and social performances  
185 in tropical forest-related sectors. Since, the HCS approach has evolved to progressively  
186 involve more actors<sup>4</sup>. It is possible to distinguish between three overlapping phases of  
187 negotiation:

188 In the first phase (2010-2013), Greenpeace, GAR and TFT developed the fundamentals of the  
189 methodology to define a forest and tested it on two concessions: PT Kartika Prima Cipta (PT  
190 KPC), a subsidiary of GAR in Indonesia (GAR & SMART, 2012); and Global Veroleum  
191 Liberia (GVL) in Liberia, a company in which GAR is the main investor.

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<sup>4</sup> In May 2017, the HCS approach steering group was composed of 23 members, including 7 plantation companies, 8 international NGOs (1 focusing on social issues, FPP), 3 commodity users, and 5 technical support organizations. See: <http://highcarbonstock.org>

192 While the first did not include any social issues, the second phase (2013-2015) did. In  
193 response to critical social NGOs' reports, the focus was on how to integrate local populations'  
194 concerns into the HCS methodology. Forest People Program (FFP), an international NGO  
195 founded in the UK supporting the rights of those living in and depending on forests, played a  
196 central role. It published, together with an Indonesian NGO, the reports that would trigger a  
197 discussion with HCS advocates and was invited to contribute to the HCS approach. This  
198 process resulted in a first standardised methodology, presented in a toolkit (version 1.0)  
199 released in 2015 (HCS Approach Steering Group, 2015).

200 The third phase started in 2014, when the HCS methodology was challenged by a rival  
201 initiative ("Sustainable Palm Oil Manifesto", signed by five other major palm oil companies).  
202 Attempts of convergence between the two approaches and continuing collaboration with  
203 social NGOs resulted in version 2.0 of the HCS toolkit (Rosoman *et al.*, 2017).

204 This article focuses on how social issues have been addressed in the HCS approach  
205 throughout the whole process. The research method is based on two main sources of data: 13  
206 semi-structured interviews carried out between 2013 and 2016 with representatives<sup>5</sup> from  
207 Greenpeace (4 interviews), TFT (4), GVL (2), GAR (2) and FPP (1); and secondary sources,  
208 including the analysis of the different versions of the HCS toolkit, companies' documents and  
209 NGO reports. Among the latter, two reports stood out for specifically assessing the HCS  
210 methodology from a social perspective. The first, published in 2014 by FPP and TuK  
211 Indonesia, critically addresses the HCS methodology's impact during its pilot implementation  
212 in PT-KPC, in West Kalimantan (Colchester *et al.*, 2014). The other, published by FPP, is a  
213 consulting study compiling local and international organizations' views regarding how the  
214 application of the HCS concept has or has not accommodated their rights and livelihoods

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<sup>5</sup> CEOs, directors, GIS managers, project managers, forest engineers, campaigners.

215 (Colchester & Anderson, 2015). We examined the forms of valuation proposed in the HCS  
216 methodology from a temporal and dynamic perspective, that is to say, taking into account the  
217 various reality tests faced by the parties as well as the alternative valuation forms raised by  
218 critical voices.

### 219 **3. Towards a practical definition of the forest: an agreement between** 220 **Greenpeace, TFT and GAR**

221 This section presents the agreed-upon “forest” definition and the methodology developed to  
222 operationalise it.

#### 223 *3.1. A first “forest” definition for implementing a zero-deforestation policy*

224 There are many ways to define or characterise what is and what is not a forest. More than one  
225 hundred definitions co-exist today (Vidal *et al.*, 2008). While the FAO provides a definition  
226 with the intention that it be widely – if not universally – used to facilitate cross-comparison  
227 and international statistics, many countries or organizations have their own due to their  
228 histories and specificities. During a meeting in Jakarta in 2010, representatives from GAR,  
229 Greenpeace and TFT reviewed several indicators commonly used to define or characterise a  
230 forest but found none of them satisfactory. They had three main concerns over the definition’s  
231 use: that it be easy and inexpensive for operational managers and enterprises (e.g. less  
232 expensive than biodiversity studies); that it be universal, irrespective of the geographical  
233 context; and that it be “viable”, ecologically and economically speaking (Aubert *et al.*, 2016).

234 To this end, they identified a single indicator: the above-ground biomass (AGB) of a forest  
235 stand, estimated in tons of carbon per hectare (t C/ha) and used as a first proxy of a forest’s  
236 ecological interest. The threshold of 35 t C/ha was proposed at this time to differentiate  
237 forested and non-forested areas, one of the main reasons being that it could fit to a “carbon

238 neutral” approach which was developing at this time in the palm oil sector. Indeed, 35 t C/ha  
239 is the AGB of a mature oil palm plantation, meaning that if only vegetation areas with less  
240 than 35 t C/ha are converted to oil palm, it will not emit more greenhouse gases. The next  
241 question was then how to operationalise such a forest definition?

### 242 3.2. A two-step methodology: from the vegetation map to the operational map

243 The three main actors agreed on a two-step methodology, starting with mapping the  
244 vegetation. This first step contains several sub-steps. Firstly, a preliminary *vegetation map* is  
245 produced using satellite imagery and an automatic stratification process. Secondly, a forest  
246 inventory is carried out on sampled patches to confirm or modify the preliminary map – a  
247 process called groundtruthing. The resulting vegetation map distinguishes six forest strata,  
248 from “cleared/open land” to “high density forest”. The 35 t C/ha threshold falls between two  
249 intermediate categories, “young regenerating forest” and “scrub”, and distinguishes between  
250 “degraded land” – deemed former forest – and “high carbon stock forest” (Figure 1).

251

252 Figure 1: the HCS Forest Stratification ([highcarbonstock.org](http://highcarbonstock.org))

253

254





255

256

257 In the second step, the vegetation map is used to draw an *operational map*, which clearly  
 258 distinguishes “forest areas” to be protected, from “degraded lands” that may be converted to  
 259 plantations through a *decision tree* process. Relying on conservation science (as put forward  
 260 by its advocates), this decision tree consists of a series of tests successively applied to all  
 261 forest *patches* whose ABG is above the 35 t C/ha threshold to clarify their final status: to  
 262 conserve or develop. For this process, the patches classified as HCS forest are assessed  
 263 according to four criteria: size; connectivity to ecologically-interesting areas; risk of  
 264 degradation; and biodiversity level.

265 Despite the whole process being highly formalised, its implementation also depends on an  
 266 “operationality” imperative, which is valued by companies as the “efficient” management:  
 267 “First and foremost we have to consider blocks of land that are sufficiently large to justify

268 operational efficiency, and coherent operational management. [...]. The HCS in these areas  
269 makes a very fragmented operating environment, a very unprofessional operating  
270 environment.” (Interview, GVL manager, 2013).

271 In that sense, GAR mentioned the need to check whether the remaining HCS areas  
272 fundamentally compromise the plantation operation and, if so, consider minor adjustments to  
273 small HCS/non-HCS areas, including exchange arrangements.

274 In version 2.0 of the toolkit, this process has been complexified in 14 steps, in particular to  
275 address the mentioned operability imperative. Patches are given a priority level by their  
276 size. *Medium and Low Priority Patches* are then assessed according to the other criteria (such  
277 as connectivity or degradation risk) and they may change categories in the final stages, when  
278 “viability and optimisation” aspects are considered. Thus, in the process, some are  
279 provisionally marked for “give and take”. In the last steps, which aim at creating an Integrated  
280 Conservation and Land Use Plan (ICLUP), optimisation of conservation, social and economic  
281 outcomes are addressed through the give and take process. The objective of the latter is to:  
282 “exchange Low Priority Patches (LPP) and Medium Priority Patches (MPP) [...], where areas  
283 in-filled and restored for conservation (give) exceed the LPP and MPP and ‘fingers’ are  
284 moved to development (take)” (Rosoman *et al.*, 2017, module 5, p. 22).

285 Thus, the methodology is based on a quantitative and highly technical metrology (tons of  
286 carbon per ha and GIS technology) hinging on a claim of neutrality, as well as on a  
287 negotiation as part of a give and take process. Overall, the entirety lies on the assumption that  
288 different pieces of land are substitutable if they share similar properties from a conservation  
289 science perspective.

#### 290 **4. Towards an integrated land use plan: the role of social NGOs**

291 As described above, the HCS methodology relies on complex operations ranging from image  
292 analysis to field surveys. Besides the problems surrounding the availability of resources  
293 (technical expertise, cost of satellite imagery, etc.) and the (im)partiality of data selection and  
294 characterization, the issue of conflicting knowledge formats is particularly critical when  
295 mapping the diversity of land uses. Indeed, far from being a neutral exercise, the vegetation  
296 map risks rendering some land uses invisible, even when the necessary resources and  
297 impartiality are guaranteed. In this section, we show the role of social NGOs in shedding  
298 light on locals' views and, subsequently, in modifying the HCS methodology to render a  
299 plurality of land uses visible.

300 In their reports, FPP and TuK Indonesia point out the risks associated with the use of satellite  
301 imagery, as this Indonesian villager exemplifies: "We should make it clear that there are  
302 communities here. We people who belong to the communities are not seen by the satellites"  
303 (Seberuang village secretary quoted in Colchester and Anderson, 2015).

304 Such geographic information technology raises the "troubling question of whether remote  
305 sensing "sees" the land uses of particular social groups and not others" (Walker & Peters,  
306 2007). In Kalimantan, where the HCS was first implemented, several land uses deemed  
307 particularly important by residents remained undetected by satellites: fallow lands used in  
308 shifting agriculture, agro-forestry and uncultivated lands (e.g. sacred sites). The traditional  
309 Dayak agriculture includes both the dry (*ladang*) and wet shifting cultivation of rice (Penot,  
310 2003), meaning that some lands have successional vegetation reverting to forest and/or to be  
311 used again for *ladang*. It also involves mixed gardens, which are complex agro-forests  
312 composed of fruit trees and high diversity timber trees (Penot, 2003; Wulan *et al.*, 2008). The  
313 invisibility of swiddening is a general problem, as data on swidden land and populations are

314 lacking (Walker & Peters, 2007). As noted in the NGO report (Colchester *et al.*, 2014), if  
315 family agriculture fallows and reserves were measured, their size would be much higher than  
316 that currently under cultivation.

317 In theory, the groundtruthing phase of the HCS methodology could resolve several difficulties  
318 raised by satellite imagery by permitting a more careful observation *in situ*. Yet, an outsider  
319 might not recognise fallow land or sacred areas. As one community leader explains:

320       Sometimes the boundary is less than 2 km away, and we have fields way beyond that point, you  
321       can see the fallows that are out there [...] some of those fields have been left between 6 and 10  
322       years and may now look like forest, but that is our fallow (Villager from Moungue quoted in  
323       Colchester & Anderson, 2015).

324 This difficulty points to the problem of specific forms of information that those unfamiliar  
325 with the place – such as those from companies, consultancy firms or environmental NGOs –  
326 may not perceive. For local dwellers, familiar markers (Thévenot, 2006) - natural (rivers, trees,  
327 etc.) or ancestral (graves, etc.) - are valued as valid pieces of information. While these forms  
328 of information are widely shared by residents, it is not easily so with non-residents, who have  
329 no familiar links nor attachments (Silva-Castañeda, 2012).

330 Different information formats arising from both satellite imagery and groundtruthing result in  
331 conflicting categorizations with local communities, as seen in this Indonesian villager's  
332 complaints:

333       We feel that old scrub is really our land and belongs to our ancestors: it is not HCS. All these  
334       areas called HCS1, HCS2, ... why are they categorised as this? They are just old regrowth and  
335       are also for our future. [...] (Looking at map) That land they put on the map as HCS1; it is our  
336       land for future generations. There is no HCS here. The company cannot prevent us from  
337       cultivating these areas because this is our land. (Villager from Menapar quoted in Colchester *et*  
338       *al.*, 2014).

339 Recognizing the initial lack of consideration for local communities, HCS advocates adapted  
340 their methodology. Alongside the recognition of the important principle of Free, Prior and  
341 Informed Consent (FPIC) pushed by social NGOs, they granted them the possibility of  
342 creating their own map through a participatory mapping process to be superimposed on the  
343 vegetation map. This would allow local communities to value their land uses and their  
344 familiar markers by translating them into geographic coordinates. Yet, the decision to not  
345 include local dwellers in the creation of the vegetation map on the basis of it being “too  
346 technical” is noteworthy:

347         For the actual image analysis and the forest inventory, really that work is done by very technical  
348         people and then, socializing the results and talking about 'Ok, this is what we found, here are the  
349         forests, here are the buffer zones that we need'. For that you will then need a discussion, but for  
350         the actual work of the HCS itself, I don't think local people would be super involved in that, I  
351         can't think of any way how. They just need to know what is going on (interview, TFT, HCS  
352         Project manager, 2015).

353 Thus, a clear separation is drawn between the knowledge formats. On the one hand, the  
354 technical expertise on vegetation analysis remains in the realm of forestry engineers and  
355 company managers. On the other hand, local communities are supposed to create their map  
356 based on their own knowledge of the locale. The objective is not to integrate different formats,  
357 although experiments integrating traditional ecological knowledge and remote sensing may  
358 provide alternative insights into vegetation classifications and land cover analysis (see for  
359 instance Naidoo and Hill, 2006). As described above, HCS advocates aimed at a “pragmatic”  
360 (“easy to use”) and standardised tool where vegetation categories would have a universal  
361 value, excluding *a priori* the complex integration of local knowledge. Nonetheless, the HCS  
362 protocol provides, in theory, symmetry between knowledge formats: the superposition of

363 vegetation and participatory maps aims to make them equivalent. However, once this is done,  
364 the different parties face a huge difficulty: what to do with overlapping uses?

## 365 **5. Integrating differences: consequences of a liberal grammar for the valuation** 366 **of forests and cultivable lands**

367 To overcome conflicting land uses, the HCS methodology foresees a specific mode of  
368 composition: a negotiation process. Regarding the pilot implementation in Liberia, a TFT  
369 forest engineer explained:

370 Participatory mapping is one step. Next, there are table discussions and community consent [...]  
371 You superpose the maps and if you have overlaps between the community zones and the forest  
372 zones, then you enter into negotiation with them, especially if these forests have high  
373 conservation priority [...] This could pose some problems. [...] Thus, the FPIC process becomes  
374 very important, and it is necessary to really be able to find a balance between what is the land  
375 for the community and the land for the enterprise, and the forest to conserve (Interview, TFT  
376 forest engineer working in GVL plantation, 2013).

377 Thus, the parties may be asked to enter negotiation to reach a *balance of interests and needs*.  
378 As stipulated in the toolkit (version 2.0), community lands “will be enclaved and excluded  
379 from being categorised as HCS forest and from plantation development, unless they are  
380 *negotiated* to have a different status as part of the “give and take” process” (see Step 13 of the  
381 Decision Tree). Thus, the toolkit recalls the need for local populations’ FPIC, a principle  
382 according to which a community has the right to give or withhold<sup>6</sup> its consent to proposed  
383 development that may affect the lands it legally or customarily owns, occupies or uses. At the

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<sup>6</sup> In theory, “where communities deny consent, the areas should be excluded from a company’s plantation development or conservation plans” (Version 2.0). We will see however that, in practice, it is difficult for local communities to assert their rights and they are more often asked to negotiate.

384 same time, however, it stipulates that if communities are willing to compose with other  
385 stakeholders, this composition will be part of a process of give and take, lands being  
386 *negotiated* to reach a land use deal. In this process, land is valued for its function (or utility).  
387 In this section, we explore three major issues raised by such a mode of composition (Table 1).

388 *5.1. A negotiation regime: transforming personal attachments into interests*

389 The negotiation process guides local communities towards a particular format, where they are  
390 expected to transform their *attachments* to the place and their familiar experience into  
391 *interests* and *calculated needs*, which are more suited for trade-offs with other stakeholder  
392 interests (Table 1, column 3).

393 In order to participate in an “integrated land use planning”, communities are expected to  
394 engage with the future in a functional engagement (Thévenot, 2006). Local communities are  
395 concerned for their future generations and have experience in evaluating whether they can  
396 lease or rent some of their lands to palm oil concessions. However, “to draw the right  
397 information” – as one Greenpeace campaigner put it – and engage in negotiations with palm  
398 oil developers and HCS experts, they may be required to do this in a very specific format that  
399 integrates formal calculations of areas and macro variables (demography, markets, etc.)  
400 (Colchester & Anderson, 2015). Yet, as explained by this campaigner, this task is not easy:  
401 “it's not by asking different people in the village that you'll have a good spatial representation  
402 of what they need. (...) it's necessary to anticipate the population's increase, it's really  
403 complex. For me, that is the most complicated” (Interview, Greenpeace campaigner, August  
404 2013).

405 This expectation supposes a complex transformation of local practices, experience and  
406 “intimate knowledge of the locale” (Colchester & Anderson, 2015) into a more industrial  
407 form of calculation (Boltanski & Thévenot, 2006 [1991]) based on technical and quantitative

408 indicators. The two FPP reports underline the great difficulty of this operation, which implies  
409 a transformation of valuation modes. In workshops led by FPP to test the process of future  
410 needs calculation, the communities explained their own systems of land use planning, what  
411 was valued in their customary lands, and how they made estimates of their land needs. For  
412 example, they reported that “Dayak do not measure the extent of their farms according to  
413 their area, but rather on the basis of their yield and the amount of grain needed to sow them”  
414 (Colchester & Anderson, 2015, p. 33). In this case, the property is not a fixed area and can  
415 vary. They made educated guesses at the extent of their farmlands, with complex calculations  
416 based on estimations of yearly areas of extension for shifting cultivation per average family,  
417 duration of the cultivations and duration of regeneration, depending on the soil quality and on  
418 the crops (Colchester *et al.*, 2014). At the time of integrating the future needs, FPP concluded  
419 that “estimating the extent to which people will stay on the land and making allowances for  
420 future choices of crops and livelihoods and the vagaries of the market, renders all such plans  
421 even more approximate” (Colchester & Anderson, 2015).

422 Alongside these transformations into calculated needs, the negotiation process supposes that  
423 communities would have to transform their attachments into *interests*. The interests to be  
424 negotiated are presented as “options” to the parties. These become substitutable, either  
425 because they are framed as an economic metric or because they are seen through their  
426 function. This is illustrated by one Greenpeace representative, who during the pilot  
427 implementation foresaw a need to formalise economic incentives for the communities and to  
428 substitute wild meat proteins to facilitate the negotiation of land uses.

429         It's all about getting community buy-in for the concept and the approach. It's not going to be easy, I mean  
430         the hunting issue is huge, it's a very difficult issue. [...] In Indonesia, they do get around that a little bit by,  
431         for example, starting these buffalo farming schemes together with the palm oil. [...] That's some of what's



432 being done in Indonesia anyway, to substitute protein to wean people off wild meat sources (Interview,  
433 Greenpeace International, 2013).

434 Similarly, the toolkit version 2.0 introduces the notion of “alternative livelihoods” (module 2,  
435 p. 14). For areas under cycles of rotational farming, forest fallows and where communities  
436 expect to make their living by farming, ground surveys that “evaluate total area and the land  
437 needed to maintain current communities’ livelihoods” may “be considered in relation to  
438 incentives for alternatives livelihoods and farming productivity gains (e.g. maintaining or  
439 increasing production while using less land)” (Idem). The latter corresponds to a common  
440 vision among the palm oil industry actors that communities’ shifting cultivation and/or  
441 settlement mobility produce “idle lands”, and that these communities could relinquish (or  
442 exchange) part of these lands if they changed their “ways of living” and farming systems.

443 A “benefits and incentives package” was also introduced in the toolkit (2.0, module 5) to  
444 “address conditions regarding substitution and compensation measures for foregoing uses and  
445 benefits” (p. 41). Most of them are supposed to transform personal attachments to places and  
446 ways of living into an economic metric (e.g. employment in plantations, benefit sharing  
447 projects, monetary compensations for relinquished lands, direct payments for forest  
448 conservation as REDD+) and to reduce the land properties to its quantitative dimension  
449 (extent of areas) through a functional engagement appropriate for land substitutions  
450 (accepting an “alternative land of equivalent extent”, quoted from interviews in Colchester  
451 and Anderson, 2015).<sup>7</sup>

452 Thus, whereas the FPIC module of the toolkit recalls that “a landscape is not only important  
453 for community members in economic terms: it is invested with memories [...] and underpins

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<sup>7</sup> It is to be noticed however that securing local communities’ tenure rights (including on HCS areas), an option that respects the dwellers’ place-based attachments, can be included in the negotiated “incentive package”.

454 these people' very identities" (Rosoman *et al.*, 2017, module 2, p. 5) <sup>8</sup>, the methodology,  
455 through negotiation, favours a process that potentially diminishes these important existential  
456 bases of human lives by forcing the "interest interpretation".

457 *5.2. A negotiation regime: power imbalances*

458 Framing composition as a negotiation also implies inserting hope into a process that involves  
459 parties with unequal resources. The FPIC principles aim at guaranteeing that, despite power  
460 imbalances, these negotiations meet several minimal conditions, such as that of a free and  
461 informed choice as opposed to an imposition by force. The liberal notion of choice, however,  
462 underestimates the constraints faced by rural people for whom the array of options is  
463 extremely reduced (Li, 2010). As such, in a situation where few alternatives exist, they might  
464 accept changes in their land uses in hope of exiting poverty. It also underestimates the huge  
465 power imbalance that characterises relationships between palm oil companies and local  
466 populations, as well as the broader political economy in which those relationships are  
467 embedded.

468 In a report targeting GVL, the human rights NGO Global Witness (Global Witness, 2015)  
469 denounced how the company had expanded its oil palm plantations in south eastern Liberia.  
470 This NGO contends that GVL significantly expanded its operations in this area during the  
471 2014 Ebola crisis, when the risk of contagion forced the NGOs supporting local communities  
472 to stay at home. This report's authors argue that the signatories of the multiple "Memoranda  
473 of Understanding" signed at this time lacked information when they decided to surrender their  
474 lands. As they put it, "[the] 'choice' includes perverse incentives for people to sell their land  
475 and work the plantations as a GVL employee, or receive nothing and risk losing their land  
476 anyway" (Global Witness, 2015, 6). The report also denounces the climate of fear and

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<sup>8</sup> It is noticeable that "section A" of module 2 was penned by FPP.

477 intimidation created by collusion between the company and government officials. These land  
478 deals occurred after the departure of TFT, which had assisted the company in formalizing its  
479 land acquisition procedure. As noted by one TFT employee:

480 All the agreements which have been signed since we left [...] I don't know all the details but  
481 actually, signing so much land during ebola, it does not seem super clean [...] I don't know  
482 whether the FPIC process had been the one defined with them. It's always in these types of  
483 situations that you have enterprises that transform, change, up until the moment that suits them.  
484 And then, if that suits them more, they will adapt their process so that it suits them a little  
485 more... (Interview, TFT forest engineer, 2015).

486 Hence, the company may only comply with the guidelines up to a certain point. Thus, GVL,  
487 even though it had been assisted by TFT and had carried out the HCS assessment, was highly  
488 criticised for not complying with FPIC principles.

489 The case of PT KPC in Kalimantan also reveals the many obstacles to a FPIC process. As  
490 explained above, a preliminary step before entering negotiation is the participatory mapping  
491 done by local communities. In PT KPC, this proved extremely difficult: the company initially  
492 omitted it, but then, recognizing the importance of such an exercise, TFT was tasked with  
493 accompanying local communities in this process, only to be blocked by the latter. As  
494 explained by one FPP representative:

495 TFT agreed that, indeed, participatory mapping was required to make sense of where the  
496 communities and their rights are, etc., and livelihoods. So then they very, very, slowly started  
497 the process, and the first obstacle they came up against was that the community didn't trust  
498 them, and the second obstacle they came up with was that some of the communities didn't want  
499 to be mapped because they didn't want to be in the concession and they felt that, by being  
500 mapped, they would be somehow included. And then, the third obstacle they came up against  
501 was that the government didn't want the mapping done because they had a different idea about

502 what the rights of the communities are in the landscape. And they didn't like – they didn't really  
503 approve of communities insisting on land rights (interview, FPP representative, 2016).

504 As explained in this excerpt, governmental officials also blocked participatory mapping  
505 efforts and it was only in late 2014 that they carried out a mapping to comply with the new  
506 village law. Yet, the mapping done at that time was not considered as really “participative” by  
507 the villagers. The concerned concession thus presented a mixed picture: in some villages,  
508 administrative boundaries were mapped with governmental officials; in others, with the help  
509 of TFT. Yet, in other communities, those that were opposed to the concession, a participatory  
510 mapping was finally done, but with the help of independent NGOs and in a process of clearly  
511 asserting their land rights. These experiences show that the initial step of participatory  
512 mapping is arduous, as the various actors have highly conflictual interests and unequal  
513 resources.

514 Taken together, these cases highlight firstly the companies’ capacity to circumvent the rules  
515 that they themselves have either defined or at least agreed upon. Secondly, they stress the  
516 importance of the larger context in which negotiations take place, where governments often  
517 promote a specific view of economic development that implies the implantation of large  
518 companies on so-called “idle” or “unused lands”, on the one hand, and the delimitation of  
519 conservation areas, on the other. In both cases, this context largely determined the  
520 negotiations’ possible outcomes.

### 521 *5.3. Composing by referring to plural forms of common good?*

522 We have shown that HCS proponents see the composition with local communities as a  
523 negotiation. As developed above, this raises two problems. First, transforming local  
524 communities' concerns into interests frames and reduces those concerns. Second, power  
525 imbalances may strongly impact negotiation outcomes. In this section, we extend this analysis

526 to highlight another fundamental problem that stems from the visions of common good  
527 underpinning the HCS method: the metrics used in the methodology support a specific vision  
528 based on *industrial* and *market* orders of worth (Table 1, column 1).

529 Guided by pragmatism (to engage the industry and reduce costs), the advocates agreed on a  
530 simplified proxy indicator - the AGB estimated in tons of carbon - and on a decision tree to  
531 determine the status of those patches whose AGB is above the HCS threshold. Through this  
532 process, the forest patches considered of little ecological interest due to their small size, low  
533 connectivity, lack of biodiversity and degradation risk are progressively excluded from  
534 conservation (or exchanged in a give-and-take process). Thus, by describing forest as blocks  
535 or spatially-distributed patches, it creates a simplified image of the forest (Leach & Scoones,  
536 2013), one that fits with an *industrial* conception of nature.

537 In the *industrial* order of worth, valuation relies on the principles of efficiency and  
538 productivity. Following that mode of valuation, the HCS methodology views the “good” use  
539 of the environment as an optimisation problem (Mahrane, 2015). Building on the idea that  
540 “big chunks of forest become the key for both conserving carbon and biodiversity” (Interview,  
541 Greenpeace International, June 2013), the toolkit defines the ecological optimisation principle  
542 as follows: “conservation area design maximises the area and a conducive shape/connectivity  
543 for long-term conservation” (Version 2.0, module 5, p. 20). This vision fits with the economic  
544 optimisation principle valued by companies, which requires that a “potential development  
545 area is maximised and shape and size of blocks are practical and promote efficient  
546 management” (*Idem*). With this common and core interest on optimisation, economic  
547 operators and conservationists found negotiation to be a useful tool. The give-and-take  
548 approach to land exchanges points toward a common aim: “to increase core size [of forest

549 patches] [...], as well as provide larger and better-configured areas for development” (module  
550 5, p. 32).<sup>9</sup>

551 This *industrial* order of worth was also easily combined with another, important to companies,  
552 the *market* one. Relating the negotiation between Greenpeace and GVL during the pilot  
553 implementation, the company said:

554       If we have 500 ha blocks that are spread over an area of 10 km<sup>2</sup>, it’s idiotic [...] Liberia’s only  
555 chance to stop slashing and burning or moving to the cities is large-scale agriculture. [...] The  
556 threat I see to the HCS is that we are not able to find most of the people jobs [...] If we are  
557 given the opportunity to develop Young Regenerating Forest [which are just above the 35 t  
558 threshold], we give guys jobs [...] and after they stop hunting illegally and they start working  
559 for the concession (Interview, GVL manager, 2013).

560 This interviewee upholds a specific conception of development, one that is guided by *market*  
561 and *industrial* orders of worth. It supports industrial efficiency and company profitability  
562 through agricultural specialisation and division of labour (Cheyns *et al.*, 2017).<sup>10</sup> From this  
563 perspective, large-scale agriculture is presented as a means of poverty reduction in that it  
564 generates work for rural populations. Local peoples’ land uses - shifting agriculture and  
565 hunting - are, on the contrary, phrased in negative terms as illegal or anti-environmental  
566 practices. This issue of development models was at the heart of the criticism that social NGOs  
567 levelled at the HCS. Thus, the FPP report’s (2015) conclusion starts with the following quote  
568 from an Indonesian NGO:

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<sup>9</sup> It is interesting to note that this industrial vision is so strong that social issues are also addressed according to the ‘social optimisation’ concept. Social optimisation is defined as “sufficient land for use by community and benefits obtained from HCS forest conservation” (Rosoman *et al.*, 2017, module 5, p. 20).

<sup>10</sup> This vision opposes that of local dwellers for whom a plurality of uses prevails and is often incorporated into the same area (multi species “mixed gardens”, various uses of forest areas, fallow lands, etc.).

569 The HCS system cannot accommodate the rights and livelihoods of local communities and  
570 indigenous peoples without first changing the legal framework of plantation governance regime  
571 from large-scale, private concessions of land, forest and resource control that have been proven  
572 extremely conflictual, and encouraged rampant corruption and abuse of human rights (p. 33).

573 Valued from a *civic* order of worth, the large-scale concessions model is considered  
574 prejudicial, as it undermines local populations' rights and impedes equitable access to natural  
575 resources. Control over land and smallholders' independence are major stakes, as expressed  
576 by this villager (see also Hanu, 2015):

577 We want to work our own lands ourselves. We don't want to work as coolies on our own lands.  
578 We want to work our land under our own control. If land is opened up for oil palm, if we agree  
579 to allow expansion for oil palms, then there will be nowhere to get good timber for our houses.  
580 When we need it, it will be gone (head of a village in Kalimantan quoted in Colchester *et al.*,  
581 2014, p. 23).

582 This villager recalls the multiple uses dwellers may have of lands and forests. He also  
583 questions the benefits of working for the concession, pointing out the abuses to which workers  
584 may be subjected, as well as the progressive loss of independence that stems from this  
585 economic model.

586 In its 2015 report based on a large consultation, FPP questions the undue reliance of the HCS  
587 tool on concessionaries, arguing that the concession system is inherently conflictual and  
588 inequitable, and that alternative production systems should be promoted, such as allocating  
589 greater areas to smallholders (Colchester & Anderson, 2015, p. 5). Thus, the issue is not only  
590 to guarantee a FPIC process, but more generally to defend alternative visions of *common good*.  
591 HCS advocates were not able to integrate this critique, since the HCS approach was primarily  
592 designed as a tool for plantation companies based on *industrial* and *market* orders of worth.

## 593 **6. Conclusion**

594 The HCS method was created to address the problem of concessions' expansion in high  
595 biodiversity areas. It was initially a compromise between conservation NGOs and industries: a  
596 tool designed to protect so-called viable forest areas, without jeopardizing the concession's  
597 efficiency and profitability. Responding to heavy criticism, HCS advocates then tried to  
598 accommodate local communities' and social NGOs' concerns by allowing local communities  
599 to draw up their own maps and to give (or withhold) consent. However, they privileged a  
600 specific mode of composition: the liberal grammar by which composition comes about  
601 through negotiation, the objective being to find a balance of interests. In this article, we  
602 demonstrated three implications of this approach.

603 To defend their interests, local dwellers are required to bring their map. Thus, they must  
604 transform familiar markers – a format of information dependent on dwelling in the area and  
605 mobilizing ancestral and family memories – into geographic coordinates. In the process of  
606 mapping, one difficulty is linked to the plurality and high variations of land uses over time, as  
607 most clearly illustrated by the practice of shifting cultivation. Thus, measuring not only  
608 cultivated land but also fallows and reserves is a complex exercise. Villagers are also  
609 supposed to engage with the future in the form of a plan (Thévenot, 1995), that is by  
610 specifying clearly their needs and transform them into calculated areas. More generally, they  
611 are asked to clearly frame their concerns into interests. Such transformation allows drawing  
612 equivalences between various options, following the criteria of economic interest, and suitable  
613 for substitution. Potential incentives as compensation for relinquishing rights have been drawn  
614 even where local communities may have a long-standing occupation. Thus, the “HCS  
615 package” proposed to local dwellers implies a specific mode of environmental valuation, one  
616 that excludes personal attachments to the place.



617 The second issue relates to power imbalances. A liberal grammar of commonality  
618 presupposes that individuals make choices between different options. Yet, the HCS  
619 implementations endeavoured so far show us that the liberal notion of choice largely  
620 underestimates the constraints faced by local people, most notably in a context where national  
621 and local governments have defined economic priorities that are unfavourable to them. In the  
622 case of PT KPC in Indonesia, the numerous obstacles encountered in the process of  
623 participatory mapping show how villagers, companies and public authorities have highly  
624 divergent interests and unequal resources. In such a situation, local communities might refuse  
625 to enter a so-called participatory process where power imbalances would work against them.  
626 Through the example of GVL in Liberia, we also see that, far from the liberal notions of  
627 civility and respect, the use of violence or manipulation is plausible. Company collusion with  
628 government officials, intimidation or imprisonment are common in land rights and natural  
629 resources struggles.

630 Finally, the *industrial-market* compromise reached by conservation NGOs and companies can  
631 hardly accommodate *civic* principles of justice and equity, most notably because a tool  
632 designed with the goal of forest preservation and to be used by large-scale plantation  
633 companies is *per se* incompatible with a view of the equitable access to land and  
634 independence of local peoples and small farmers. Thus, a radical criticism of the HCS is that  
635 this tool relies on an inherently problematic concession model (Colchester & Anderson,  
636 2015). Furthermore, the specialisation of labour and land valued in this model contrasts with a  
637 perspective of plural uses in a same land area, more common to rural dwellers in Indonesia.  
638 With environmental protection framed as a problem of conflicting land uses and of  
639 maximising utility for a given quantity of land, the plurality of uses and local ecologies have  
640 little chance of being valued. Even if the participatory mapping allowed local communities to  
641 make their land uses visible, the second phase of the method - negotiation with a

642 maximization constraint - renders their integration highly challenging (i.e. into a land use  
643 plan). Thus, the HCS is more than a vegetation and land cover data collection tool. Mainly  
644 relying on an industrial order of worth and on a liberal grammar, it encapsulates and  
645 reinforces a specific vision of the environment and how people should relate to it. As such, it  
646 dismisses rural dwellers' existential forms of valuation and civic principles of justice.

647

648 Table 1. Grammars of commonality and modes of valuation in HCS

	<b>1. Grammar of plural orders of worth</b>	<b>2. Liberal grammar of opting individuals</b>	<b>3. Grammar of personal affinities to common-places</b>
<b>Integrating differences</b>	Making a compromise between the plurality of orders of worth	Negotiating	Joining together multiple affinities to common-places
<b>Forms of valuation</b>	Plural orders of worth: market competition, industrial efficiency, civic solidarity, etc.	Individual preferences (interests, opinions) for public options	Personal attachments invested in common-places.
<b>Valued nature</b>	Nature can be valued as a heritage, a price, a quantity of carbon, an expression of wilderness, etc., referring to different orders of worth.	Valued for its functional utility.	Valued as a dwelled-in environment. Ease. Intimate bonds also with non-humans, with memories, etc.  Not commensurable.
<b>HCS valuation</b>	Metric elements based on quantity of carbon, GIS (industrial worth).  Methodology values efficiency and productivity/ha (market-industrial worth): large scale units, specialization of land and labour.  Does not accommodate civic order of worth: independence, equity of access/distribution of resources.	Maximization/optimization of functional utility: “develop or conserve” through negotiation. “Give and take”.  <div style="border: 1px solid black; padding: 5px; margin-top: 10px;"> Transformation of attachments into interests, suited for negotiation and substitution: “alternative livelihoods”, “benefit &amp; incentive package”, “compensation”, “land for land deals”, etc. </div>	Not accommodated in the methodology.

649 **Source:** Adapted from Thévenot (2014) and Centemeri (2015)

650

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