Norwegian University
of Life Sciences

Master's Thesis 2017   30 ECTS
Faculty of Biosciences

The role of values in no deforestation policies

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Acknowledgements

Disclaimer

The role of values in no deforestation policies

Abstract

Since 2013, many companies have made commitments to ensure their supply chain is not linked to deforestation, known as No Deforestation Policies (NDPs). Despite the development of tools to implement NDPs, deforestation is ongoing. This research took a values–based approach to explore less–considered social aspects of why deforestation is ongoing despite the number of NDPs in the agribusiness sector. The role of company values, commercial values, values of no deforestation or environmental protection and personal values in NDPs was investigated. Data was collected through content analysis of semi-structured interviews, company values statements and NDPs, and observation from 6 months' work in a global not-for-profit organisation working on sustainable supply chains. Interviews were conducted with growers, integrated grower–trader companies, traders, brands and experts. The research investigated where values in NDPs come from, how values are integrated into NDPs, and how values influence implementation of NDPs. From this sample, commercial values appeared to be given priority in NDP development and implementation, though personal and company values related to environmental values in NDPs were also important. Values in NDPs were observed to be spread through experiences and human interactions. Focus on integration of commercial values was observed to potentially lead companies to focus on quick-fix, narrow–scope solutions. Results suggest greater collaboration and emphasis on non–commercial values among all actors may help NDP implementation and ensure global agribusiness supply chains are free of deforestation and exploitation. It is hoped that this research encourages increased attention to the influence of underlying human beliefs on actions aimed at addressing environmental issues in agricultural supply chains.

Key words

Agroecology, agribusiness, deforestation, forests, supply chains, values.

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Introduction

1.1 DEFORESTATION IN WORLD AGRICULTURAL SUPPLY CHAINS

Forests are an essential natural resource for the well-being of the planet and humanity (Foley et al. 2011; Food and Agriculture Organization of the United Nations (FAO) 2015). Forests provide food security, livelihoods and mid-term green growth possibilities, as well as essential ecosystem services such as water and nutrient cycling, soil health, biodiversity conservation, and climate regulation (Boucher et al. 2011; FAO 2015; Trumbore et al. 2015). However, large areas of forest are being cleared, threatening provision of forest–related ecosystem services and contributing to already high greenhouse gas emissions, particularly in the world's tropical regions (Foley et al. 2011; Henders et al. 2015; Vijay et al. 2016). The twist is that a major driver of large–scale deforestation is production for agricultural exports, generally seen as an essential part of sustaining the human population.

Between 1990–2015 net global forest loss amounted to 129 million hectares, equivalent to the size of South Africa (FAO 2015). Intact forest landscapes are particularly important for the maintenance of ecosystem services, and their surface area has reduced by 7.2% since 2000; predominantly in Russia, Brazil and Canada (Potapov et al. 2017). Forest clearing releases large amounts of CO_2 and accounted for 7–14% of human–caused CO_2 release between 2000–2005 (Harris et al. 2012). While the latest Global Forest Resources Assessment (FAO 2015) reported overall reduced rates of deforestation, this is not the case in some important forest areas. For example, in the Brazilian Amazon, which is one of the world's greatest carbon sinks and biodiversity hotspots, deforestation rates have recently increased to highest levels since 2008, with almost 800 000 hectares of forest felled between August 2015–July 2016 (Butler 2016).

Globally, agriculture is estimated to be causing 70% of forest loss (Amaral and Steer 2017). According to the United Nations Reduced Emissions from Deforestation and forest Degradation in developing countries (REDD+) program, key direct drivers of deforestation in Asia, Africa and South America are commercial and subsistence agriculture, natural resource extraction, growing infrastructure and urbanization (Kissinger et al. 2012). Key underlying drivers are increased demand for timber and agricultural commodities, arising from economic growth and population growth, shifts in household consumption patterns and international market fluctuations (Kissinger et al. 2012). In Asia, Africa and Latin America, commercial agriculture has been identified as the leading cause of deforestation, followed by subsistence agriculture (Hosonuma et al. 2012). This finding supports other observations that drivers of land clearing associated with agriculture have transitioned from rural, subsistence farmers to large–scale operators particularly in South East Asia and South America (Butler and Laurance 2008; Boucher et al. 2011; Austin et al. 2017).

Soybeans, palm oil, beef cattle and timber, pulp and paper products are recognized as the top four drivers of deforestation linked to agricultural production (Boucher et al. 2011; Henders et al. 2015). In the tropics, these four industries account for more than 3.8 million hectares of forest loss annually; more than a third of annual tropical deforestation (McCarthy 2016). Between 2000–2011, production of these four commodities in seven countries with high deforestation rates[1], accounted for approximately 40% of deforestation and subsequent CO_2 emissions in these countries (Henders et al. 2015). Products such as coffee, charcoal, rubber, cacao and sugar are also important causes of deforestation linked to agriculture (Union of Concerned Scientists 2017).

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[1] Argentina, Bolivia, Brazil, Paraguay, Indonesia, Malaysia and Papua New Guinea

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While the moratorium on selling soybeans in South America from deforested areas may have reduced forest loss in certain regions, it has potentially driven deforestation in other areas (Boucher et al. 2011; Hoyos et al. 2013; Nepstad et al. 2014). The Cerrado in Brazil and Argentina is an example of this; it is estimated that about half of the Cerrado (approximately 100 million ha) has been cleared for agricultural use in the past couple of decades (Gibbs et al. 2015). Land clearing for beef production, occurring predominantly in South America, causes the greatest surface area of forest loss among these top four commodities—approximately 2.7 million ha yr^{-1} (Union of Concerned Scientists 2017). Land clearing for oil palm and wood products releases the greatest amount of carbon, as it often occurs on carbon–rich peat soils containing up to 28 times more carbon than the forests they support (Henders et al. 2015). Malaysia and Indonesia are by far the key players in the palm oil industry, accounting for 87% of the global production in 2013 (FAO 2014). Nevertheless, suitable growing areas in South America and Africa have recently been identified as highly vulnerable to deforestation and biodiversity loss as a result of oil palm development (Semroc et al. 2015; Vijay et al. 2016). In all of these regions, palm oil growth is largely fuelled by the appealing financial returns for developing economies, a result of high demand from Europe, North America, China and India (Padfield et al. 2016). Another important driver of deforestation is the wood products industry, often indirectly causing deforestation by logging for hardwood and degrading the forest, leading to forest conversion to oil palm or pulp wood plantations in South East Asia and for other agricultural purposes in South America and Africa (Boucher et al. 2011). In Africa, rural charcoal production for urban energy demands is an increasing driver of forest degradation and eventual deforestation (Boucher et al. 2011; Breitfeller 2015; Sedano et al. 2016)

1.2 EXPLORING THE ROLE OF VALUES IN NO DEFORESTATION POLICIES

Responding to civil society campaigns and subsequent increased consumer awareness, the public and private sector have been working on policies and tools to end deforestation linked to agricultural supply chains (Padfield et al. 2016; Patari et al. 2016). However, given the scale and rate of ongoing forest loss, it may be that a new angle to ending deforestation may provide useful insight into how to implement these policies. Three points guided the choice of focussing this research on the role of values in agribusiness[2] commitments to end deforestation: inadequacies in governance measures, momentum for large agribusinesses making NDPs, and critiques of current industry transformation practices suggesting attention on social aspects is needed. These commitments are hereafter referred to as No Deforestation Policies (NDPs).

Firstly, in the governance sector, policy tools such as national forest preservation laws and reforestation programs, the UN's REDD+ program and laws to minimize illegal logging such as the Lacey Act in the USA have been put in place (Meyfroidt et al. 2010; Paddock 2016). In China, large–scale government payment schemes offering farmers grain and cash reimbursements to convert farmland to forested land, sizeable afforestation programs and logging bans are all contributing to reduced deforestation (Liu et al. 2008). Particularly on a global scale, such governance measures have been criticised as slow (Godoy, forthcoming) and lacking enforceability, resulting in a non–binding policy with limited impact, such as that of the 2014 Rio+20 UN Conference on Sustainable Development (Benson and Craig 2014). Furthermore, even when the policy, legislation or regulation mechanism to stop deforestation is sound, these are not consistently accompanied by effective motivations or

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[2] Agribusiness defined in the Collins dictionary (2017) as "the various businesses that produce, sell, and distribute farm products, especially on a large scale".

prosecution (FAO 2015). It has been suggested that the effectiveness of such government policies to end deforestation is influenced by the importance of the agriculture sector in that country compared to other sectors, as well as the ecological importance of individual forests compared to others within the country of interest (Nolte et al. 2016). For example, the trend of decreased deforestation rates in Brazil due to moratoriums on beef and soy production, increased size of protected areas, economic incentives and increased monitoring (Soares-Filho et al. 2010; Hargrave and Kis-Katos 2011; Nepstad et al. 2014), has recently reversed due to economic decline augmenting profit from agricultural exports, weakened policies and policy enforcement (Butler 2016; Greenpeace 2016). This example and these critiques suggest that while governance and policy mechanisms can contribute to reduced deforestation, there is a need to consider other approaches in addition.

Turning to industry, there has been a wave of agribusinesses making commitments to minimize and eventually end connections to deforestation throughout their entire supply chain over the past 5 years. According to the organization Supply Change, 366 companies with an estimated value of $2.9 trillion have made NDPs (or equivalents); mostly companies dealing in food products like Nestlé and Mars (McCarthy 2016). Within this group, the percentage of NDPs concerning the top four commodities linked to deforestation varies considerably: 61% include palm oil; 54% include timber and pulp; 19% include soy and 15% include beef (McCarthy 2016). Many of these companies have large logging leases to clear forests (known as forest concessions) or are linked to these companies through their supply chain. Thus, NDPs are seen as a significant step towards protecting the environment and important ecological services (Brown and Zarin 2013).

Despite this potential and an abundance of tools developed to implement and verify NDPs, such as traceability tools (Bosona and Gebresenbet 2013), satellite tracking (Amaral and Steer 2017; Brown and Zarin 2013) and general improvements in technology, data collection and communications (Beamon 2008), deforestation is ongoing. Much past and current research on ending deforestation focuses on the impact of forest protection policies (e.g. Gibbs et al. 2015), and few consider under what context these policies evolve and are implemented; a common trait in studies on sustainability more generally (Eccles et al. 2011; Wiek et al. 2012; Nolte et al. 2016). The apparent inability of policies and tools to achieve sustainable development in any given sector suggests something is missing in current approaches and new tactics are required (Benson and Craig 2014; Braito et al. 2017). In light of this, it is increasingly recognized that social aspects of transformation towards sustainability and environmental behaviour should be given greater attention (Arias-Arévalo et al. forthcoming; Wiek et al. 2012; Nguyen et al. 2015; Sovacool et al. 2015). In addition, consideration of the relationship people hold with the natural environment is becoming more common in initiatives and policies aimed at sustainability and nature conservation (Arias-Arévalo et al. forthcoming; Flint et al. 2013; Robinson and Sasu 2013; Sovacool et al. 2015).

Key literature generally concedes that values are important indicators of an individual's principles, positions and actions that can carry significant consequences for group behaviour and actions concerning the environment (Dietz et al. 2005; Colvin et al. 2015). While there is evidence connecting values, particularly altruism to environmentalism, it is relatively unknown what triggers people to adopt new values and the actual impact of such values changes on real actions (Arias-Arévalo et al. forthcoming Dietz et al. 2005; Colvin et al. 2015; Braito et al. 2017). Therefore, there is a need to study the role of values related to environmental issues. This research aimed to contribute to this knowledge gap by focusing on the role of values in NDPs.

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A common definition of values employed by psychologists and sociologists was used: *"the criteria people use to select and justify actions and to evaluate people (including the self) and events"* (Schwartz 1992 p1). The following research questions were asked:

- Where do values in NDPs come from?

- How are values integrated into NDPs?

- How do values influence implementation of NDPs?

Research approach, scope, and methods

2.1 RESEARCH APPROACH

The research was informed by and conducted as a contribution to the field of agroecology. The agroecological foundation encouraged mixed approaches, methods and disciplines; alternation between global, regional and local scales of NDP impact; and a focus on results that could contribute to solutions to issues in global agricultural and food systems. Fig. 1 depicts the overall research design, showing the research topic in the centre circle, and in the rings going out from the centre the research questions, approaches and methods used. Table 1 details the research approaches as relevant to this study; Sections 2.2 and 2.3 describe the methods of data collection and analysis used.

Fig. 1 Research topic, questions, approaches and methods (from inner to outer ring)
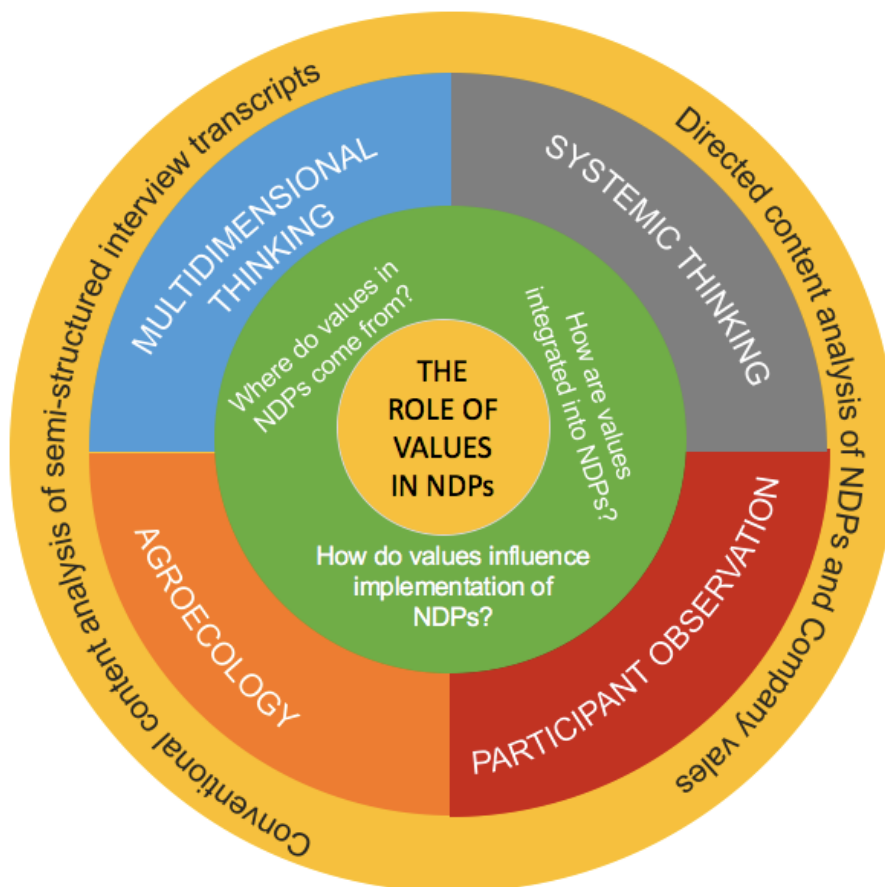
Table 1 Description of the research approaches as applied in this research

Approach	Description
Agroecology	Agroecology transcends traditional single-disciplined approaches to complex agricultural-environmental issues, enabling a deeper understanding from which to develop plans for action (Francis et al. 2003; Rickerl and Francis 2003; Bland and Bell 2007). Agroecology can be a scientific discipline, an agricultural practice, or a political movement (Wezel et al. 2009). Here, agroecology was the scientific discipline underlying the research. The following three approaches considered central to this discipline were employed (Méndez et al. 2015).
Multidimensional thinking	Multidimensional thinking translates to consideration of a situation through multiple lenses, or disciplines, at multiple scales (Rickerl and Francis 2003). This study used multidimensional thinking by conducting interviews at different points along the supply chain with growers, grower–traders, traders, brands and experts. The consideration of how different types of values (company, commercial, no deforestation and personal) occur and influence NDP is also multidimensional thinking.
Systemic thinking	Systemic thinking involves moving from one level of abstraction to another between the different layers of a system, allowing the researcher to reflect on the nature of the research practice itself (Ison 2008). This study employed systemic thinking by considering the role of values at multiple, non-discrete scales. For example, values held by individuals, groups of people in the workplace, and whole communities.
Participant observation	Throughout the research period (January – July 2017), the researcher worked full time for TFT, a not-for profit based in Switzerland with the mission to *"transform supply chains for people and the planet"* (TFT 2017). Direct observations were made through meetings, phone calls and emails; reflective observations were formed through taking of personal notes throughout this period. These observations informed interpretation of research findings.

2.2 SCOPE OF RESEARCH

Participants were selected through extensive discussion with colleagues at TFT. Companies were limited to those that worked with TFT on implementing an NDP for at least one forest–risk commodity. Individual participants were selected via recommendation of who was most closely working on the company's NDP, plus experts thought to have valuable knowledge to contribute. In total, 27 people from 14 companies and 6 organisations and institutes working on NDPs were interviewed (Appendix A).

Participants were grouped as following: growers, integrated grower–trader companies, traders, brands, and experts. Despite efforts to include participants from a range of commodities connected to deforestation, there was a study bias towards companies having adopted an NDP related to palm oil production, due to this industry having a greater proportion of companies with an NDP (McCarthy 2016) (Table 2). NDP commitments on pulp and paper were included in the study scope as the high packaging use of consumer-facing agribusinesses is an important driver of deforestation and many companies have NDPs on this commodity (McCarthy 2016). One exception to the agribusiness company classification was made for a science and technology company consuming large quantities of pulp and paper that was a pioneer of NDPs for this commodity.

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Table 2 Number of participants and companies (organizations and institutes for expert group) per participant group and commodity [a].

Commodity	Brands	Traders	Grower–traders	Growers	Total	
Palm Oil	1	4	4	3	**12**	
Pulp & Paper	3	0	0	0	**3**	
Sugar	0	0	0	1	**1**	
Cocoa	1	0	0	0	**1**	
Coffee	0	1	0	0	**1**	
Animal Products	1	0	0	0	1	**Experts**
# Participants	**6**	**5**	**4**	**4**	**19**	**8**
# Companies	**4**	**3**	**3**	**4**	**14**	**6**
[a] The number of companies does not equal the number of participants where more than 1 participant from the same company was interviewed.						

As just described, this sample is not fully representative of NDPs across major forest–risk commodities but a selection of people with relevant knowledge on the subject area. An effort was made to speak with the largest–scale agribusiness companies possible, under the assumption that these actors have the potential for the greatest impact on ending deforestation if they implement their NDP. Smallholder producers were not included in this study directly, but came up naturally in multiple discussions with large–scale producers. The following numbers provide a rough idea of the size of participating companies:

- the seven grower and grower–trader companies manage > 2 million hectares of plantations;
- the three trader companies combined annual net sales in 2016 surpassed $202 billion USD;
- the four brands employ more than 500 000 people and are present in over 191 countries.

There was no geographical delimitation of the study, however more participants were working on NDPs focused on tropical regions, where the majority of deforestation from large–scale industrial agricultural production occurs (Union of Concerned Scientists 2017). Interviews were conducted with growers and grower–traders operating in Peru, Cameroon, Liberia and Malaysia, as well as people working for these grower companies based in France and the UK. Participants representing traders and brands were based in Switzerland, France, Ireland, USA, Panama, Singapore, UK and China. Experts were based in France, Switzerland, UK and the USA but working around the world. Thus there was a trend for upstream participants (closer to commodity origins) to be located in the Global South and downstream participants (furthest from commodity origins) and experts to be in the Global North.

The delimitation to what comprised an NDP was a formal document declaring intent to transform the company's supply chain to not include deforestation and better protect forests. Some participants highlighted a distinction between an NDP and their company's policy on forest conservation; for the purposes of this study these were considered as NDPs.

To assist identification of patterns, the role of compatible types of values or orientations was explored, as suggested by McCarty and Shrum (1994); these types are outlined in Table 3.

Table 3 Description of the four types of values investigated in this research, which looked at their occurrence, integration and how they influence implementation of NDPs

Value	Description
Company values	Core company values, including principles, goals, objectives and missions.
Commercial values	Value places on economic growth and monetary profit
No Deforestation & environmental values	Value placed on keeping forests intact, avoiding forest loss, environmental protection and minimising harm to nature
Personal values	Beliefs guiding personal motivation and actions

2.3 DATA COLLECTION

Data was collected through three main sources:

- Published company values statements and NDPs obtained from company websites;
- Participatory observations made while working at TFT from January–July 2017 including notes taken during meetings and reflection notes taken away from the work place;
- Semi-structured interviews: see below

Semi-structured interviews were conducted in two parts, as advised by Cohen and Crabtree (2006) and conducted in accordance with interview guidance from Neuman (2014) and Kvale and Brinkmann (2009). Part 1 was the pilot phase and consisted of the first 4 interviews, part 2 was the remaining 23 interviews. Part 1 progressed understanding of the study topic, and findings were used to confirm the clarity, relevance and formulation of the interview guide for Part 2 (Appendix B). The interviews were semi-structured; each interview was a unique discussion based on the interview guide. This guide was adapted for interviews with experts so that questions asked about their impression of companies with NDPs. Despite the individuality of each interview, an effort was made to touch on the role of each of the four values types (company, commercial, no deforestation or environmental protection, and personal) and the interactions between these in NDP development and implementation phases. Interviews were of approximate duration one hour, conducted via phone or Skype and recorded for later analysis (with the permission of the participant).

2.4 DATA ANALYSIS

Directed content analysis of participating companies' NDPs and corporate values statements was conducted in accordance with Hsieh and Shannon (2005). The aim of this method was to identify occurrence of different types of values in published company documents. Codes were pre-identified through preliminary research and observations on values relevant to the topic of no deforestation and looked for in the texts.

Conventional content analysis of interview transcripts was used to analyse findings from interviews in accordance with Hsieh and Shannon (2005). All interviews except one were recorded and transcribed verbatim; the exception did not have permission to be recorded so thorough notes were taken and used for coding. Data coding and conceptualization of transcribed interviews was conducted in accordance with Neuman (2014) (Fig. 2). This method differed from directed content analysis as codes were looked for in the text rather than pre-defined (Hsieh and Shannon 2005).

Note: Both content analysis techniques allowed identification of general trends in the sample studied. Results are mostly descriptive as the study sample was not representative, and neither coding software nor multiple people were used to verify the coding process. Preference for qualitative results was given to avoid misinterpretation or extrapolation of quantitative results that are only applicable to this study. Furthermore, qualitative results were deemed most suited for the aim of this research to explore the role of values in NDPs with the guidance of research questions and not to prove or disprove a hypothesis through experimentation.

Fig. 2 Description and example of conventional data coding used in content analysis of interview transcripts

Open coding: initial identification of **codes**. → Axial coding: organization and linking of initial codes to identify key analytic **categories** → Selective coding: scanning all data for codes to support categories developed, and eventually identify **themes**.

A code is a short description capturing the essence of a portion of data in the context in which it occurs.

A category groups content together that share commonality.

A theme ties multiple categories together.

"So from that experience, he (the CEO) developed like a whole program, a strategy, to grow with smallholders." → CEO personal experience → CEO's personal experiences are important to NDP implementation → CEO personal values influence decisions

Text — **Code** — **Category** — **Theme**

Sources used: Granheim & Lundman 2004; Neuman 2014

2.5 DATA CONFIDENTIALITY

Included in the request for participation in this research was an overview of the research context, questions & methods, and an assurance that information gathered would remain anonymous (Appendix C). Prior to conducting the interview, participants were asked for permission to record the interview. Information gathered through semi-structured interviews and participant observation/action research was collected under the Chatham House Rule[3], which served to maintain confidentiality of identities. Participant names, positions of participants, and any other information which would allow identification of the participant have thus been omitted.

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[3] https://www.chathamhouse.org/about/chatham-house-rule

Results

3.1 WHERE DO VALUES COME FROM IN NDPs?

Interviews identified a strong presence of personal values related to values of no deforestation in NDPs; all but one participant that discussed the topic affirmed this link. Some people related stories about a particular experience in a place where deforestation is happening on a large scale that awoke them to act on their environmental and social values. They said that sharing these experiences with their colleagues helped spread awareness in the workplace about the how these values are at the basis of NDPs.

More participants said that some, rather than most, of their colleagues share personal values linked to those in the NDP. The reason participants said only some of their colleagues share values related to those in the NDP was a belief that groups of people within a company place more emphasis on environmental or commercial values depending on their position in the company. They said that people in trading, sourcing, and operational positions tend to be more black-and-white focused, preferring clear pathways and targets, and people in sustainability related positions tend to be more focused on environmental and social objectives. However, it was also recognized that it is difficult to speak for other colleagues, especially those with whom they are not in everyday contact.

All participating companies had some kind of published statement about their values[4]; more than half of company participants said that these values are strongly present and well communicated throughout the company. Most company values statements talked about sustainability and commercial values, while ecological and social values were more common in NDPs (Table 4). Approximately two thirds of participants who talked about company values said these are referred to in difficult decision-making processes such as making NDPs. Interview and NDP content analysis did not find any remarkable differences in values related to the name of the NDP or whether it was an independent document or part of a sustainability policy. One company, a subsidiary of a larger growing company, did not have a published document resembling an NDP but was included in the sample as they were taking actions to meet unpublished commitments to no deforestation.

Table 4 Directed content analysis results of company values statements and NDPs[b]

	Values explicitly (any kind)	Sustainability values (in general)	Commercial values	Ecological values	Social/community development values
Company values	9	10	13	4	10
NDPs	3	9	9	13	13
[b]The number of company values statements is 14, but the number of NDPs is 13 because one company didn't have a published NDP.					

About two thirds of company participants said their NDP was developed for a mix of reasons. However, the same amount also indicated that a dominant driver of NDPs is reputational risk, linked directly or indirectly to a campaign. NDPs are widely seen as helpful to securing sustainable long-term suppliers and benefitting stakeholder engagement and communications. Participants from downstream companies were more likely to discuss NDP development directly to a campaign, while those from upstream companies talked about pressure coming from their buyers. Experts placed greater emphasis on the role of campaigns behind NDP development than company participants did, considering reputational risk the most important driver of NDPs.

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[4] Statements about beliefs were included as a common definition of values is 'fundamental underlying beliefs'; sets of principles and vision statements were also included when they talked about values.

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In summary, the leading driver of NDP development across the study sample was risk management related to maintaining the commercial values of the company. However, NDPs appeared to be linked to personal and company values as well.

The results from data coding of interviews relating to this research question are presented in Fig. 3.

3.2 HOW ARE VALUES INTEGRATED INTO NDPs?

All but one participant who discussed the topic said it was important to integrate commercial values into NDPs. They said that while companies generally accept that there are initial costs of implementing NDPs, NDPs still cause tension with commercial relationships – particularly with suppliers. Over a third of company participants and all experts highlighted that commercial values are deeply entrenched in the foundations of companies, and are somewhat dominating over other values being integrated into NDPs. The most discussed approach of integrating commercial values in NDPs was through practical measures such as Key Performance Indicators (KPIs). This was particularly the case in downstream companies. However, not many companies have clearly defined KPIs related to NDs, and not all companies have commercial values written in their NDP[5]. One participant from a grower–trader company did not see KPIs as a relevant means for NDP implementation at all. They said it doesn't make sense to divide NDP outcomes into scalable KPIs when the outcome should simply be zero deforestation.

Many participants also saw a benefit of integrating company values into NDPs. Less than half of the company values statements contained an explicit link to NDPs—for example, use of the same words to describe their purpose or providing a link to the other document. On the contrary, all but one NDP implicitly integrated company values by talking about similar values in their introduction. Nearly half of company participants said this link is important and can provide a baseline for discussions about NDP implementation with internal and external stakeholders. Once again, this was particularly the case among participants from downstream companies.

Some participants' responses reflected a more long-term vision about the integration of real values of forest protection into their NDP, including internal alignment of employees' personal values relevant to this work. Thus, despite the overall trend to focus on short-term solutions integrating commercial values it appears some companies are working on integrating company values and true values of no deforestation into NDPs.

Company participants and experts reported that company structure and stakeholder engagement influence integration of values in NDPs and how NDPs are developed. Interviews highlighted that company structures are increasingly adapting from previous models of sustainability teams off to one side to having people working on sustainability better integrated into companies. Experts agreed that better integration of employees responsible for sustainability policies into companies' decision-making and operational processes increases the likelihood that NDP implementation will include values other than purely commercial values.

Overall, interviews showed that most people in companies with NDPs are more heavily focused on integrating commercial values into NDPs than other values, which tend to remain on paper and less present in actions taken.

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[5] 9 of 13 NDPs talk about commercial values of some sort; more than half of these are about supporting economic development in the growing area, and others talk about securing a sustainable supply chain through their NDP and thus promoting good business.

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However, some people seem to have a more long-term view and are really looking at integrating company values and values of no deforestation into their actions.

The results from data coding of interviews relating to this research question are presented in Fig. 4.

3.3 HOW DO VALUES INFLUENCE IMPLEMENTATION OF NDPs?

All company participants said that NDP implementation is driven where there is alignment of personal values, company values and values of no deforestation and/or local community development. Almost half of company participants interviewed, mostly downstream, said that connecting with relevant personal values of internal or external stakeholders where possible helps NDP implementation. However, some mentioned that the corporate setting can make such connections difficult. While only a few participants said that their CEO's personal values are driving NDP implementation, all company participants said it is critical to have CEO buy-in on the NDP. Experts also emphasized the importance of CEO buy-in for successful NDP development and implementation.

A few participants brought up the influence of generational differences on values held by employees and if and how this influences NDP implementation. It was said that younger generations are more interested in sustainability in their workplace and more likely to consider a sustainable approach as the obvious path forward than older generations. They said older generations can be unwilling to accept that the way they have been doing things for decades needs to change. However, it was also said that older generations of growers see NDPs as an opportunity to grow with respect to the ecosystem, which was how they originally learned to operate.

Another important influence of values on NDP implementation identified through the interviews was the tension between values of forest conservation and values of local community development. Approximately 90% of participants that discussed this topic said there is a definite tension around how these two values are perceived by local communities and how they are perceived by buyers and consumers of their products. Grower and grower–trader companies in particular discussed how it is difficult to deal with local communities and local governments favouring socioeconomic development goals and customers favouring values of no deforestation. This tension appeared strongest in landscapes with a high percentage of forest cover – frontier territories for new plantation developments. Interestingly, these values coexist in NDPs on paper – all NDPs included mention of forest protection or ecological values and social values – mostly supporting local communities. In addition, participants said their companies try to harmonise their approach to ensuring both of these values are respected.

Some participants said their personal values are more aligned with sustainable local community development than values of forest conservation. These people expressed particular concern about the tension described above as well as doubts as to how NDP implementation can ensure both values are maintained. Grower and grower-trader participants said there needs to be increased attention to developing a combined approach to ensuring both of these values can be assured. Downstream participants, all working in the Global North, tended to say this tension was the problem of the upstream participants, saying that if growers can't ensure both of these values are respected then they shouldn't develop in that area.

In summary, personal values appear to have a remarkable influence on NDP implementation, in some cases particularly those of the CEO. There is sizeable tension between values of no deforestation coming from downstream buyers in the Global North and values of local socioeconomic development coming from upstream

growers and local communities in the Global South. The responsibility for finding a way forward combining both values does not appear to be agreed on between actors along the supply chain (nor experts).

The results from data coding of interviews relating to this research question are presented in Fig. 5.

3.4 DIFFERENCES IN THE ROLE OF VALUES IN NDPs BETWEEN COMMODITIES AND PARTICIPANT GROUPS

Differences in the role of values in NDPs were pronounced between participant groups and not pronounced between different commodities. Participants who were familiar with multiple commodities also said they did not know of major differences regarding the role of values between different commodities–see section 4.4. Differences between different participant groups have been referred to above by the terms upstream and downstream participants and in Figs 3–5.

Participants working upstream in palm oil, soy and cocoa supply chains commented that growers and local communities in different growing regions tend to have different personal, environmental and commercial values relating to NDPs. For example, communities in highly forested areas of Liberia with minimal infrastructure tend to prioritise socioeconomic values over conservation values much more than communities in Malaysia where forests have been cleared for over 100 years and who have more infrastructure. Such differences in the role of values in NDPs were generally talked about as being influenced by socio-economic situations, political environment, culture and history of the area.

Appendices D & E present detailed directed content analysis results of company values statements and NDPs. Appendix F provides some examples of the conventional data coding content analysis process used for identifying themes in interview transcripts.

Fig. 3 Data coding results of interviews relating to research question 1: Where do values in NDPs come from

Where do values come from in NDPs?

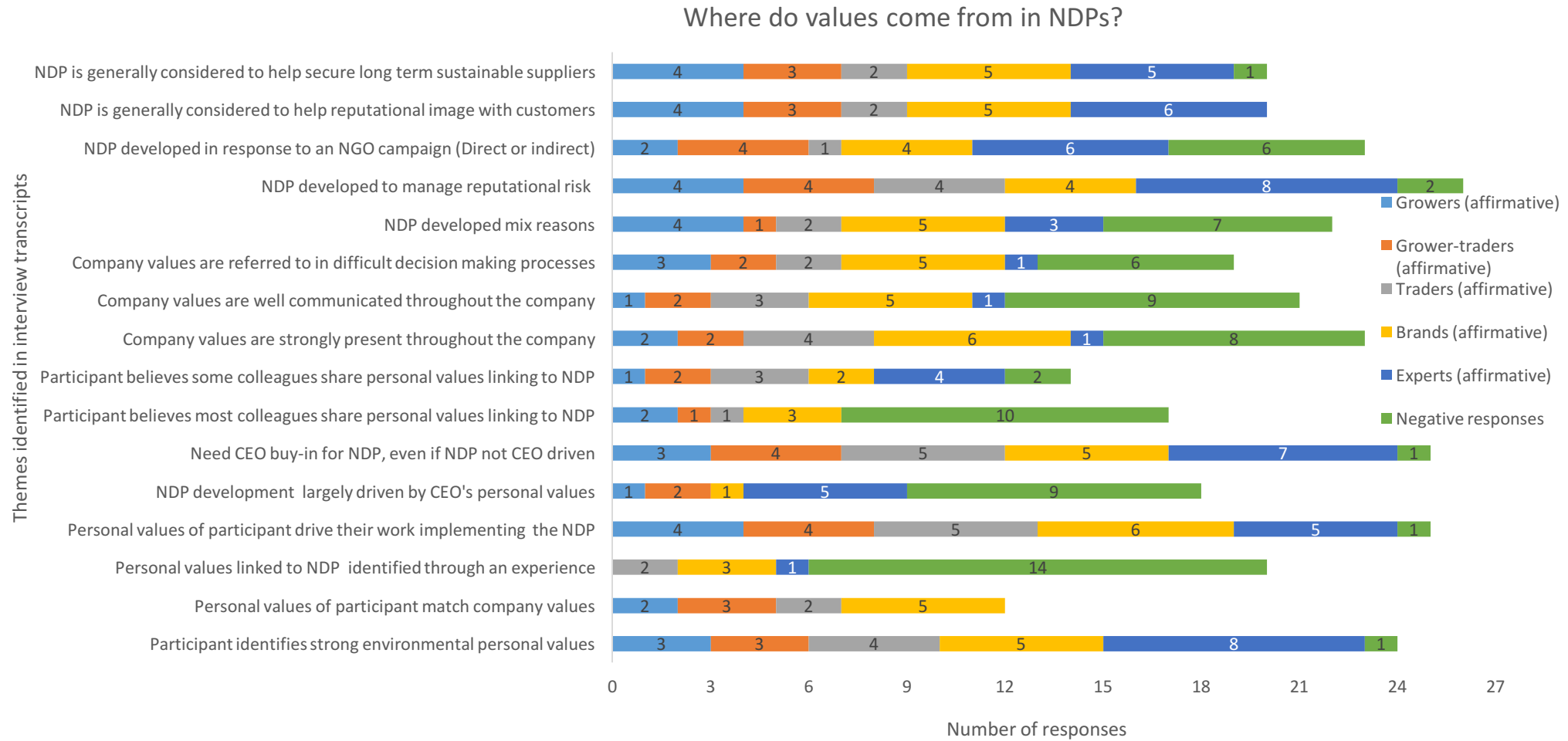**Fig. 4 Data coding results of interviews relating to research question 2: How are values integrated into NDPs**
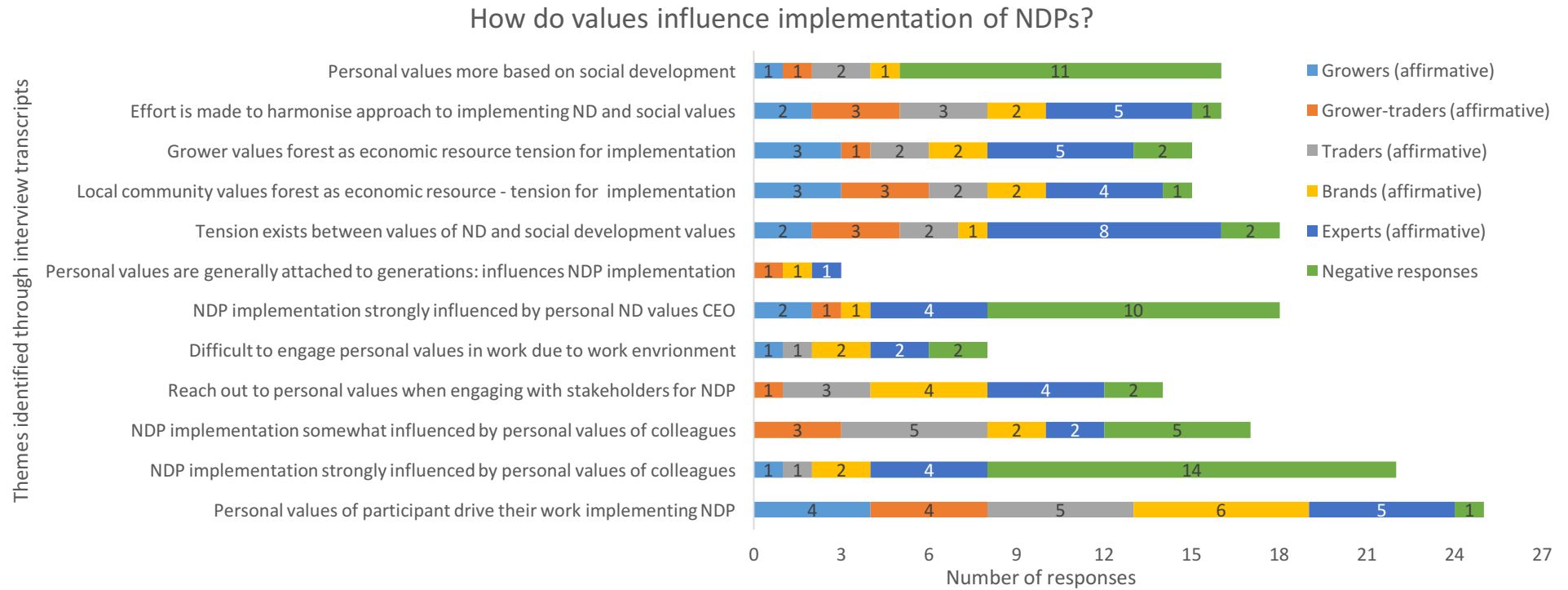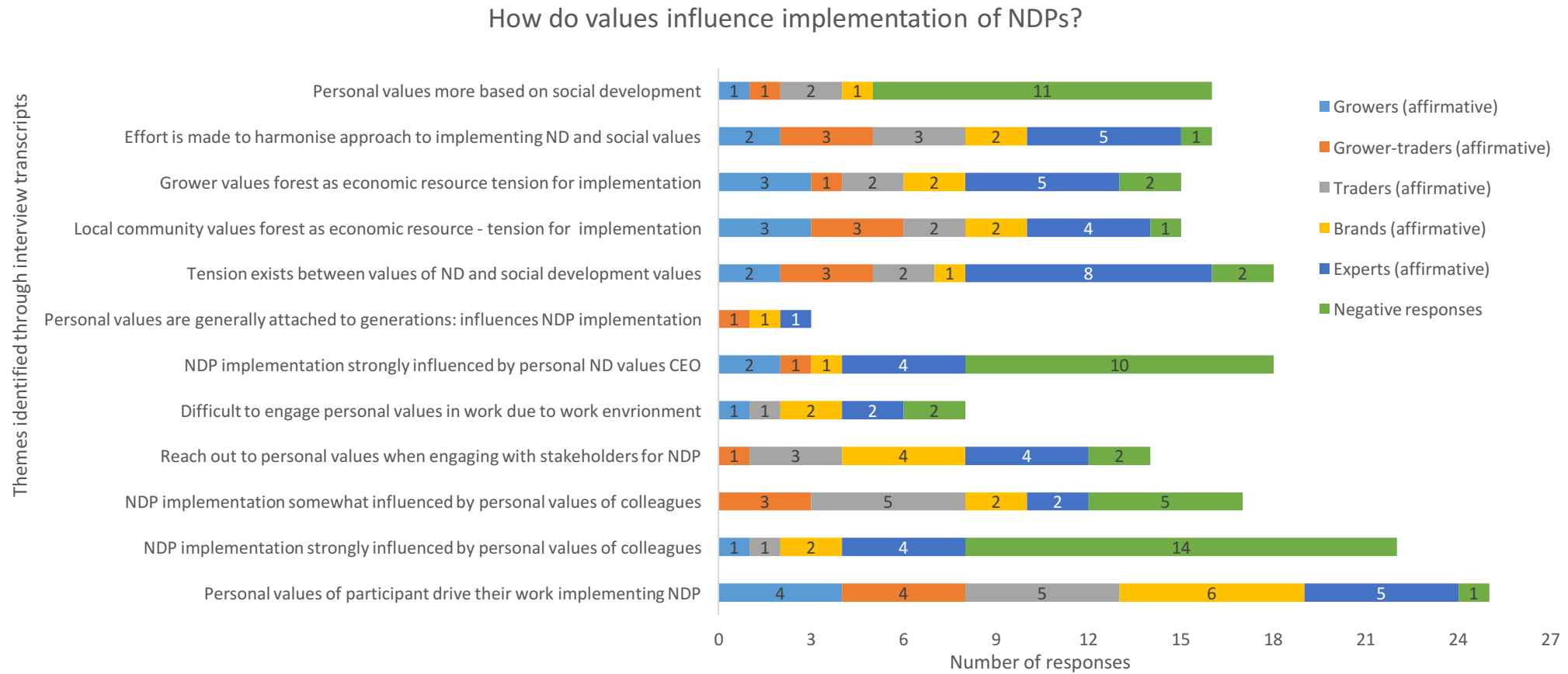

How do values influence implementation of NDPs?

Fig. 5 Data coding results of interviews relating to research question 3: How do values influence implementation of NDPs

How do values influence implementation of NDPs?

Discussion

4.1 WHERE DO VALUES COME FROM IN NDPs?

All NDPs in this sample group were largely driven by reputational risk, suggesting that commercial values are at the core of these NDPs. This is not surprising given that most companies are founded predominantly on commercial principles. However, it was also observed in this research that where personal and company values of no deforestation are present in the company, these can be *activated* by NDP development. Thus, NDPs are not being entirely driven by commercial values.

Experiences, conversation and human interaction, either between colleagues of the same level or between a CEO and their employees, appeared to be an important origin of personal values in NDPs in this research. This phenomenon is discussed by Crompton (2010), who says that encouraging increased thought to particular issues can cause activation of values already held by people. This encouragement can come via many mediums, such as the media, colleagues, policies, experiences or education (Crompton 2010).

Experiences and human interaction have also been identified as important factors characterizing human behaviour and influencing which values people act on by Dietz et al. (2005) and Teixeira (2009). This factor could explain why tension between values of no deforestation and local community socioeconomic development was cited by all participants in the grower group and was not cited by all participants in other groups. That is, growers have close contact and experience with this conflict, and observe this tension every day, whereas participants further downstream may not have experienced or discussed this tension before.

These interviews did not suggest any definitive findings regarding the depth and importance of company values in NDPs—it seemed that company values can be used to develop NDPs and assist stakeholder engagement but that many companies do not make this link. In their book *Built to Last* on what it takes to make a visionary company, Collins and Porras (2002) discuss the impact that company values can have when they are seen as part of the foundations of the company. They say companies are more long-lasting when based on strong values of what is good business practice that persist whether they can afford to implement them or not. This suggests encouragement of a link between company values and values in NDPs could help NDP implementation. These authors also provide examples of how strong company values give employees a sense of purpose beyond just making money, a point raised by participants in this research.

Overall, it appears that the primary objective of companies in this research to seek commercial values of economic profit and good business relationships is the predominant value present in NDPs, yet personal and company values of forest conservation, socioeconomic local community development and other company values are also important values in NDPs. Findings from interviews suggest that people and companies hold multiple and at times conflicting values related to forests and forest-derived products, which can be activated by experiences, human interactions, campaigns and policies. The idea that we have non-discrete and overlapping values influenced by context or time has been discussed with regard to the ecosystem services concept (Flint et al. 2013; Arias-Arevalo et al. forthcoming). More attention on how to integrate overlapping personal and company values related

to nature in research, private sector and environmental organisations could assist actions aimed at forest conservation by these actors.

4.2 HOW ARE VALUES INTEGRATED INTO NDPs?

An overall trend for companies to focus on integrating commercial values into NDPs was identified in this study. It appeared from interviews that many companies and individuals are looking to implement NDPs as quickly as possible, with a narrow focus on minimising any financial costs and keeping business-as-usual. This quick-fix approach does not look to make fundamental changes to a broader reach of company practices. Smith and Sharicz (2011) assessed corporate sustainability policies and observed a similar trend for actions aimed at achieving the acceptable minimum and lacking clear, long-term objectives. Similarly, analysis of government policies on sustainable development and climate change mitigation and adaptation in the EU-15 countries concluded that despite a rhetoric of balancing economic and environmental objectives, the environment was usually lower priority than the economy (Casado-Asensio and Steurer 2014). This was especially the case when competitiveness at a global scale was perceived to be threatened by incorporating other values (Casado-Asensio and Steurer 2014).

Many companies involved in this research had recently modified their organisational structure to place employees responsible for implementing NDPs closer to senior management, commercial and/or operational teams. Such measures were widely considered by interviewees to assist integration of non-commercial values (such as forest conservation) into NDPs. Well-established values theory states that when quick decisions are necessary, people are less likely to reflect on values than when they have more time to reflect (Dietz et al. 2005). Thus, in trading companies and brands participating in this study, placing employees with more time and capacity to focus on NDPs next to people making fast decisions such as the sourcing teams appears to be a positive step towards integrating non-commercial values into NDP implementation.

Many participants in this research said that personal and company values can be better integrated into NDPs if they are clearly identified, which was not always the case. Analysis of the characteristics of 180 environmental and social policies by Eccles et al. (2011) found that clearly defined core values and beliefs in corporations can encourage a sustainability culture. Furthermore, clear core values and beliefs generally indicate changed commercial practices, such as improved strategy development capacity and transparency (Eccles et al. 2011). Evaluation of the role of values in community-based conservation policy in Ghana concluded that trust and legitimacy is encouraged when values are explicitly stated and integrated into the governance system, enabling the structure to better carry out its objectives (Robinson and Sasu 2013). Similarly, research on values held by stakeholder groups in coal seam gas conflicts in Australia identified shared values among groups previously thought to be distinct (Colvin et al. 2015). It is thought that such uncovering of shared values likely contributes to improved stakeholder cooperation and resolution of environmental disputes (Colvin et al. 2015).

In summary, despite some encouraging results of company restructures increasing integration of environmental values into NDPs, commercial values are seemingly given priority over other values in NDPs. This seems to be due to an emphasis on quick-fix solutions that has also been observed by research on private and public sector sustainability policies more generally. The risk of this approach is that it may be preventing more fundamental change occurring across companies and the agribusiness sector more broadly which would lead to better long-term outcomes for the environment, society and economies.

4.3 HOW DO VALUES INFLUENCE IMPLEMENTATION OF NDPs?

Interview results identified a connection between personal values and action implementing NDPs. This finding may be understood in the context of commitment as opposed to compliance. According to Senge (2006) a truly committed person is passionate and energized to achieve goals and takes responsibility for the entire task at hand, rather than for just accomplishing their allocated tasks. Applying this theory to findings from this research, it may be that people who have clearly identified values related to values in the NDP are more driven and thorough in their work implementing NDPs.

Some experts and company participants in this study expressed concern about ongoing tension between forest conservation and local community development values of different stakeholders and about this tension creating obstacles to NDP implementation. Concern about non-aligned stakeholder values hampering reaching NDP goals is justified by literature on this subject. Bok (1995), frequently cited in values literature, emphasises definition of shared, cross-cultural values to deal with issues such as environmental degradation. Meyfroidt et al. (2010) conclude from their research on deforestation connected to agribusinesses that for a solution to avoid simply displacing deforestation from one country or commodity to another it needs to combine the private sector and national governments.

One suggested approach to environmental issues currently receiving attention from industry and academic experts is resilience thinking. Resilience thinking considers the need to accept some compromises and consider interactions between problems to find the best way forward (Benson and Craig 2014). There are practical suggestions available to incorporate resilience thinking into deforestation issues explored in this research. A report on palm oil development in the Democratic Republic of Congo and Liberia concludes that there is a need for an holistic approach combining African government socioeconomic objectives with broader global civil society demands for forest conservation (Semroc et al. 2015). This is the location and industry where this tension was most often cited by participants in this research. The report proposes linking technical assistance and economic development programs to REDD+ and other conservation and human rights agreements. With the two major players in the palm oil industry in Liberia holding concessions of over 500 000 hectares and over 3.8 billion USD of investment (Sime Darby 2015; Valdmanis 2013), this area represents a significant opportunity for resilience thinking to shape a new development path engaging multiple actors, commodities and values.

The above discussion suggests that values can both assist and hinder implementation of NDPs. Where commonalities in personal values and values in NDPs are identified, this may encourage commitment leading to results beyond mere compliance. On the other hand, where stakeholder groups have clearly outlined values that are not aligned, this can slow down or prevent implementation of NDPs. Resilience thinking aimed at aligning stakeholder values across multiple issues presents an interesting approach to harnessing the positive influence of values on NDP implementation.

4.4 RELIABILITY OF RESULTS

This research was somewhat biased towards NDPs on palm oil production. This bias reflects the greater number of NDPs made for this commodity compared to other important deforestation-linked commodities, and the contacts attained by the researcher. To overcome this research bias, an effort was made to ask participants familiar with palm oil and other commodities (e.g. soy, beef, pulp and paper, sugar, rubber, coffee, cocoa and coconut) about

any differences in their comments about the role of values in NDPs between palm oil and these other commodities. The inclusion of a number of experts from various other institutes and organisations enriched findings on non-palm commodities and reduced this bias. No major differences in the role of values in NDPs were observed between different commodities in this study. However, national governance structures and whole industry measures such as the soy and beef moratoriums in Brazil have a strong influence on NDPs and may affect the role of values in NDPs for these commodities. Findings from this research may thus be considered relevant only for NDPs relating to palm oil. For non-palm oil NDPs, there are reasons to believe that conclusions may be relevant but this is yet to be confirmed. On a similar note, the sample population was considered suitable to draw tentative conclusions based on the position of participants in the supply chain (e.g. grower or trader) but not for other factors such as company size, type or growing region.

Despite the diversity of participants, a certain level of coherence across the interviews was maintained through use of the interview guide. The interval between the phase 1 pilot interviews and the phase 2 interviews was unavoidably reduced due to participant availability. This limited incorporation of learnings from phase 1 into phase 2, but also meant that results from the pilot interviews were able to be used in overall study results as the interviews were not substantially different.

Most participants were unfamiliar with discussing values in a professional setting, much less for research purposes. This potential influence on results was catered for by researching techniques for interviews and each participant's background, and by conducting the content analysis of their company's values and NDP prior to the interview. Nevertheless, participants varied in willingness and capacity to discuss personal values and make connections between different kinds of values and NDPs. This variation likely influenced results as some people may not have shared relevant information on values, while others may have emphasised certain points they felt more comfortable talking about than other relevant points—for example company values rather than personal values. In addition, drawing findings from interviews always involves interpretation by the researcher, a factor which influences reliability of results (Graneheim and Lundman 2004). The reader is reminded that this study was of an exploratory nature rather than quantitative, aimed at investigating the fundamental assumptions underlying the approach of global agribusinesses to ending deforestation in their supply chains.

The research was also susceptible to well-established influences on results arising from data collection through interviews. For more information on limitations to research arising through interview method see Frey and Fontana (1994); Kvale and Brinkmann (2009); Neuman (2014). This last reference also discusses reliability of content analysis methods, including data coding, as used in this research.

4.5 IMPLICATIONS OF RESEARCH

Firstly, further investigation into the potential bias towards NDPs on palm oil described above is required to determine whether future studies can continue to be multi-commodity. if possible, a continued multi-commodity approach to this subject would obviously have a broader reach, and help to avoid displacement of deforestation from one commodity to another. There were many benefits to conducting this research while working for an organisation focused on values, forest conservation and sustainable supply chains. Benefits included, but were not limited to, access to people in senior positions in major companies with NDPs and improved understanding of

current interests and concerns relevant to these actors. This approach is encouraged to future researchers interested in this topic.

The findings of this research highlight the need for more collaborative approaches involving multiple stakeholder groups in agricultural supply chains. Stronger links between consumers and growers, and between governments, industry and NGOs may be useful to achieving conservation and local community development goals outlined in NDPs. This recommendation for increased collaboration between stakeholders and across topics has been cited in critiques of current sustainability approaches. These critiques say current approaches are too problem-focused, lacking in operational knowledge, and lacking attention to important values questions about decision making between socio-economic aims and environmental ones (Wiek et al. 2012; Benson and Craig 2014). Devoting increased attention to identification and integration of personal, company and shared values across stakeholder groups related to no deforestation may assist suggested collaboration efforts and increase focus on non-commercial values.

Conclusion

This research provides a unique exploration of the role of values in NDPs according to 27 individuals from 14 agribusinesses and 6 organisations working on eliminating deforestation linked to global supply chains. To the researcher's knowledge, no other study has specifically looked into how values influence NDP development and implementation, despite the wave of NDPs made in recent years. Similarly, the researcher had a rare opportunity to interview a selection of people in senior positions in some of the world's biggest agribusinesses, from upstream grower companies to downstream consumer-facing brands.

For the sample group studied, the role of values in NDPs appears to depend on whether a value is recognised, given importance, and shared universally or only by some. Commercial values appeared to be given priority in NDP development and implementation, encouraging emphasis on quick-fix approaches to NDP implementation. This is potentially preventing more fundamental change in companies. However, personal and company values related to no deforestation also appear to influence NDPs. It was observed that values can be activated through experiences and interactions. Tension exists between values of forest conservation and values of local community development that is making NDP implementation difficult.

How can we activate pre-existing personal and company values of no deforestation other than through campaigns? How can we avoid encouraging emphasis on commercial values and quick-fix approaches in NDP implementation so that more fundamental transformation can occur? What compromises will be required to respect values of forest conservation *and* local community development in growing regions? Finally, what can be done to encourage all actors to take responsibility for NDP implementation and to collaborate?

It is suggested that industry, governments, institutes and organisations, and other actors should ask these questions together. After all, if we cannot look for answers together, what is the likelihood that proposed solutions will be adopted and assure positive outcomes for all actors? Beyond these specific results for the sample studied, this research draws attention to the benefits of taking a multi-perspective, values-based approach to environmental issues such as deforestation that considers underlying questions of human beliefs and behaviour in addition to looking for practical solutions.

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Appendix A: Overview of participant list

Note: A description of the company rather than a name is given where participants are yet to confirm if their company name can be included in this list. An updated version of this list will be used for the oral defence.

Company	Date (2017)
3M	24 April
Nestlé	27 April, 17 May
Large global trading company based in Switzerland	28 April
Mars	4 May, 17 May
Large global trading company based in the USA	11 May, 15 May
Large oil palm plantation company operating in Peru	12 May
Sime Darby	15 May, 29 May
Sosucam (SOMDIAA group)	17 May
Large plantation company operating in Ivory Coast	18 May
Golden Agri Resources (GAR)	19 May
Cémoi	26 May
Large global trading company based in the USA	2 June (2 people)
Large plantation and trading company based in Singapore	15 June
Golden Veroleum Liberia (subsidiary of GAR)	15 June

Organizations/Institutes	Date (2017)
HCS Steering group	20th April
TFT (The Forest Trust)	20th April
Transitions	11th May
IDDRI	29th May
TFT (The Forest Trust)	29th May
TFT (The Forest Trust)	30th May
National Wildlife Federation	6th June
Mighty Earth	9th June

The role of values in no deforestation policies

Appendix B: Interview guide for semi-structured interviews

- How strongly present are company values in day to day work and decision making?
- How are company values communicated throughout the company?
- Are company values used in decision making?
- How was the NDP developed? What and who were they key drivers?
- How well are your company values integrated into your work on implementing the NDP?
- Is there ever any tension between company values and values stated in the NDP?
- What is the role of commercial values in the implementation of the NDP?
- Who works on implementing the NDP, and how do they interact? What is the organisational structure of the company? Do you think this influences NDP implementation?
- Do you perceive any relationship between commercial values and values of no deforestation/environmental values in the NDP? How would you describe this relationship?
- Do the company values align with your personal values?
- Do you have personal values that align with values of no deforestation and/or environmental protection stated in the NDP? Does this influence your work implementing the NDP?
- Would you say your colleagues have values that align with the company values? With values of no deforestation and/or environmental protection stated in the NDP?
- Do you think different actors in the supply chain, or within your company, have different personal values pertaining to values of no deforestation and environmental protection in NDPs?
- What kind of challenges, tensions or obstacles do you face implementing the NDP?
- Who did you/have you consulted with in the development and implementation of your NDP?
- Has your work on your NDP influenced your relationship with internal and external stakeholders? How?
- General observations/remarks participant would like to share before closing.

Appendix C: Overview of research provided to participants prior to interviews

Note: most participants were given the overview below; some were given an adapted and abbreviated version via email where it was considered the more appropriate why of providing this information to the participant.

Context

Forests are an essential natural resource for the well-being of the planet and humanity. Expansion of agricultural production is a major cause of forest loss, with important negative consequences. Are the commendable efforts of the past decade to towards better protection and use of forests enough, or is something missing? Given the mismatch between rate of forest loss and pace of policy, regulation and technological solutions to meet goals of forest protection it may be time to consider more fundamental drivers of change. The recent surge of no deforestation policies (NDPs) differ from previous actions towards sustainability as they are based on a fundamental human *value* that continued forest destruction is not good for business, people, or the planet. Available literature concedes that values are important indicators of an individual's principles, positions and actions. While connections between certain values, particularly altruism, to environmental protection have been identified, what triggers people to adopt new values and the actual impact of values changes and adoption on real actions is relatively unknown.

Research questions

This research aims to explore these unknowns in an attempt to describe the *role of values* in NDPs, by addressing the following questions:

- Where do values in NDPs come from?
- How are values integrated into NDPs?
- How do values influence implementation of NDPs?

Methods

The research is qualitative, comprised of content analysis of NDPs, observation through work at TFT, and semi-structured interviews. All information gathered will remain anonymous.

Key themes for interviews:

- Existence of company, commercial, no deforestation or environmental protection values and the relationship between these and personal values
- Integration of values in NDPs into company values
- Implementation of NDPs – the role of values
- Stakeholder relationships

Interview duration is estimated at one hour, via Skype or in person. With the agreement of the participant, interviews will be recorded for later referral and analysis by the researcher. Interviews will be conducted under Chatham House Rule[6] to maintain confidentiality of identities.

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[6] https://www.chathamhouse.org/about/chatham-house-rule

Appendix D: Company values statement content analysis

Directed content analysis was performed on online content available presenting core values, mission statement, overview and 'who we are' pages of company website. **Note:** while 19 individuals from companies were interviewed, total number of companies = 14, as some individuals interviewed worked for the same company as others, in different positions and/or on different commodities. The 6 organisations/institutes of the 8 experts interviewed were not included in the content analysis of company values statements.

CODES	DEFINITIONS	G1	G2	G3	G4	GT1	GT2	GT3	T1	T2	T3	B1	B2	B3	B4
Values - general	The words values, beliefs, or principles are present, referring to fundamental values shared by the company.	●		●	●	●	●	●		●	●	●			
Sustainability values	The word sustainability is present, referring to any aspect of sustainability.	●	●	●		●	●		●	●		●	●	●	
Commercial values	The words commercial, economic or business growth or value are present		●	●	●	●	●	●	●	●	●	●	●	●	●
Ecological values	Reference is made to protecting ecological integrity of the systems they operate in, or are connected to through their business operations	●	●		●		●								
Social/community values	Reference is made to helping local community development, fair trade practices, ethical business practices such as labour conditions	●	●	●	●				●	●	●	●	●	●	
Link to sustainability policy	Link to sustainability policy found on page presenting company values.		●				●		●				●		
Link to NDP	Link to NDP found on page presenting company values.		●											●	●

Appendix E: NDP content analysis

Directed content analysis was performed on the NDP of each interviewee's company. Forest Conservation Policy, Commitment to Forests, and Sustainability Policies with sub-policies on forest protection were considered NDPs for the purposes of this research. **Note:** while 18 individuals from companies were interviewed, total number of NDPs = 13, as some individuals interviewed worked on the same NDP as others, and 1 company (a smaller grower) had no published NDP or equivalent.

CODES	DEFINITIONS	G1	G2	G3	G3	GT1	GT2	GT3	T1	T2	T3	B1	B2	B3	B4
Values - general	The words values, beliefs or principles are used explicitly (not necessarily relating to the same ones as the company values statement).	−						●		●		●			
Sustainability values	The word sustainability is present, referring to any aspect of sustainability.	−	●	●		●	●	●	●		●	●	●		
Ecological values	Commitment to protect forests and/or ecological integrity in their areas of operation or in their supply chain	−	●	●	●	●	●	●	●	●	●	●	●	●	●
Social/community values	Commitment to help local community development, and/or reference to social values such as human rights and labour conditions	−	●	●	●	●	●	●	●	●	●	●	●	●	●
Commercial values	Commitment to facilitating commercial, economic or business growth or value, including for local communities	−		●	●	●	●	●	●	●			●		●
Directly links to company values	Explicitly links to core company values, beliefs, mission statement or principles	−	●	●					●		●	●			
Indirectly links to company values	Inexplicitly links to core company values, beliefs, mission statement or principles - refers to these values without saying so explicitly	−	●	●	●	●	●			●	●	●	●	●	●

Appendix F: Semi-structured interviews analysis: conventional data coding examples

The table below provides a number of examples to further explain how the conventional data coding content analysis was carried out on interview transcripts. This coding process allowed identification of the number of respondents per theme that is presented in Figs 3–5. The first reading of transcripts allowed identification of initial codes: short descriptions of text content. This allowed the start of identification of categories: groups of codes. A second reading of transcripts looked for these categories and allowed the identification of themes, which tie categories together. For more information on this process see Neuman (2014).

Text	Code	Category	Theme
"It's not possible as a company to take that decision at a medium level. Below the CEO it's impossible."	CEO buy-in	NDP development – need CEO buy-in	Need CEO buy-in for NDP, even if NDP not CEO driven
"Need a strong message from the top, it's how you get change."	Need CEO for NDP to work		
"Well if it came from the CEO they have to take it seriously."	NDP development – CEO important		
"It's like what I was telling you we have a business objective, right, so at the end having corporate values helps us coming back to what makes sense for the company. What is good for this company. And when there are discussions we come back to the essence."	Company values useful in decision making	Company values – decision making	Company values are referred to in difficult decision making processes
"Sort of setting the stage, grounding everyone in those principles that we do our best to live by them. And usually whoever is across the table their company has their own similar principles or values, or whatever they want to be called, nowadays that's not an unfamiliar conversation to have. You can tie the work that you are doing or partnering on to these corporate values"	Company values useful in stakeholder engagement	Company values – difficult situations with stakeholders	
"I believe it is important to have personal convictions in your work"	Personal values important to work on ND	Personal values – drive NDP	Personal values of participant drive their work implementing NDP
"I think personally that gives me more meaning to my work knowing that you can have an impact and drive meaningful change. It's something that you can actually believe in and get behind"			
"I am very fortunate because I very much enjoy what I do. It's close to my heart."			