



Dutch Biomass Certification Foundation (DBC)

**Peer Review of the Wood Pellet Damage Report in Estonia by
SOMO**

Final Report

Indufor Oy, Helsinki

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ABBREVIATIONS

CoC	Chain of Custody
CW	Controlled Wood
DBC	Dutch Biomass Certification Foundation
ELF	Estonia Fund for Nature
ENS	Estonian Naturalists Society
FSC	Forest Stewardship Council
GI	Graanul Invest
HCVF	High Conservation Value Forest
PEFC	Programme for Endorsement of Forest Certification
RMK	State Forest Management Centre (Estonia)
SBP	Sustainable Biomass Programme (Standard)
SDE+	Dutch Renewable Energy Support Scheme (Stimulation of sustainable energy production scheme, Stimulerend Duurzame Energieproductie)
SOMO	Centre for Research on Multinational Corporations
WKH	Woodland Key Habitat

EXECUTIVE SUMMARY

After having carefully reviewed – at the request of the Dutch Biomass Certification Foundation (DBC) – the report “*Wood pellet damage. How Dutch government subsidies for Estonian biomass aggravate the biodiversity and climate crisis*”, published in July 2021 by the Dutch Centre for Research on Multinational Corporations (SOMO), we present our findings.

Our overall conclusion is that the alleged cases of non-conformity presented in the report have no basis. All presented cases meet the legal requirements and the certification criteria. However, some management actions carried out may have environmental impacts and be in a grey area given the spirit of the criteria.

We also emphasize that the issues are complicated, there are several authorities engaged and a lot of space for discussion and different interpretations of the regulations and criteria. An example is the renovation of peatland drainage, where the maintenance of the land improvement system is based on the Land Improvement Act of Estonia.

From the certification point of view, there were no non-conformities in the previous audits which were carried out before the publication of the SOMO report. According to the auditors, now that the report is published, these or similar cases will be looked at very carefully in future audits. Also, the forthcoming FSC standards revision will probably impact the criteria for high conservation value forests (HCFV) and forest habitats.

Below is a summary of our observations and findings on the focus areas of our peer review and a rating of the presented cases follows.

Combining all potential Woodland Key Habitat (WKH) cases presented in the SOMO report, a total of 3.9 ha was logged and possibly damaged, which represents 0.01% of the total WKH area in Estonia. Considering that about 25% of potential WKHs proposed by NGOs have not met the state criteria on WKHs, the impacted area can be even lower. Based on this, we consider that the pellet production in general, and that by Graanul Invest in particular, do not cause a high risk for WKHs in Estonia. Although it must be said, some forestry practices can potentially lead to a loss of high conservation values in WKHs, even with full compliance with both state regulation and non-state certification standards. “Unofficial” or potential WKHs can be under a higher risk than the “official” ones.

The presented cases of logging in the EU protected forests habitats and habitats of protected bird species can hardly be called critical. The issue is under government regulation and neither SBP nor FSC certifications impose additional requirements. The cases cannot be considered as an aggravation of biodiversity in Estonia or nonconformity with the Dutch sustainable biomass criteria. However, we understand that the indicated practices, such as sanitary fellings, may cause some negative impacts on the habitats. This could be monitored/addressed more closely by the forest certification audits.

The presented cases of cutting of cross-trees, as described in the SOMO report, raise questions regarding their accuracy and provability. However, even if we assume that all five cases of cross-tree cutting are presented accurately, this cannot be considered as an aggravation of high conservation and cultural values in Estonia. The mentioned 25 cases of cutting or damage to cross-trees that appeared during 2002-2020 (recognized by RMK) indicate that there is an attempt to conserve cross-trees. It shows that the conservation objective is recognized and applied by RMK in their forest management; however, the practice fails about once a year. The RMK states that the situation has improved since the cross-tree database was made public and the procedure of pre-logging site visits together with an expert has been implemented. The section of the SOMO report on cross-trees does not prove a violation of the SDE+ standard. The identification and protection measures of cross-trees (a high conservation value with fundamental importance to the traditional culture/beliefs of the local population) are implemented as required by the SDE+ criteria.

In the watersheds, all operations were implemented according to the local legislation. Cases 4.3.1, 4.3.5, and 4.3.6 (as well as 5.3.3) fall under the maintenance of the land improvement

system, which is allowed and obligatory. The practices are in line with the standards in question and cannot be considered as a violation of the SDE+ criteria. As for cases 4.3.2, 4.3.3, and 4.3.4, the relevant authorities have allowed cuttings to remove dead, damaged, storm-sensitive and fallen trees, but the operations may still have caused some environmental impacts. For similar situations in the future, it would be useful to record the reasons for implementing such operations (e.g., by taking pictures of stand conditions before cuts or collecting some data samples where it is possible). Indufor was informed that Graanul Invest is planning these improvements in their future operations.

As for the peatland forests, the cases presented in the SOMO report lack solid arguments and, in our view, cannot be considered as violations of the SDE+ standards, at least until more empirical data is provided to check the applicability of criterions 3.1 and 4.1. However, we understand that the harvesting activities in peatlands, such as drainage renovation works, may lead to water depletion and/or carbon release if the works are performed with improper practices. RMK seems to follow the modern practices in the drainage renovation works (similar to those in Finland, for example) and the risk of water depletion is considered low. The carbon balance assessment is currently not done by RMK, as the monitoring of the impacts is not required by the latest SBP-endorsed regional risk assessment. Any reconsideration of the related risk assessment should be made based on a proper carbon stock/balance analysis where the impact of the drainage renovation works can be studied, and the proper recommendations are made.

The overall language used in the SOMO report is exaggerating and misleading. The sources used, while including official Estonian statistics and websites, are mainly similar reports by other environmental NGOs or activists. The used methodology for collecting geographical information and comparing it to maps is valid and accurate. However, some of the statements lack the generally agreed cause-effect relationships.

Our main observations imply firstly that it would be beneficial to carry out closer CO₂ monitoring with drainage renovation works. New requirements and pressure to monitor and calculate carbon stock on forest lands are likely to emerge from the EU regulations, too. Secondly, there seems to be some unclarity on the SDE+ Criteria 3.1, which would merit some discussion or further guidance to actors.

Table 1 Rating of the cases presented in the SOMO report

Case Number, Name	Case Grading	
Woodland key habitats		
3.3.1 Tromsi	Not Justified	
3.3.2 Jõeveere	Not Justified	
3.3.3 Mäksa	Not Justified	
3.3.4 Harjuküla	Not Justified	
3.3.5 Jõeveste	Not Justified	
EU protected forest habitats		
3.4 EU protected forest habitats, Oldremetsa	Not Justified	
3.4 EU protected forest habitats, Vana-Tüki	Not Justified	
Protected species		
3.5.1 Three-toed woodpecker	To be clarified	
3.5.2 Hazel grouse	To be clarified	
3.5.3 Red-breasted flycatcher	To be clarified	
3.5.4 Northern goshawk	To be clarified	
The special case of 'cross trees'		
3.6.1 Partsimõisa	To be clarified	
3.6.2 Toolamaa	To be clarified	
3.6.3 Tinnipalu	To be clarified	
3.6.4 Erastvere-Sillaotsa	To be clarified	
3.6.5 Hinovariku	To be clarified	
Watersheds		
4.3.1 Vasara	Not Justified	
4.3.2 Kivioja	To be clarified	Maybe justified
4.3.3 Vastsekivi oja	To be clarified	Maybe justified
4.3.4 Kivila oja	To be clarified	Maybe justified
4.3.5 Madara	Not Justified	
4.3.6 Sõrandu	Not Justified	
Peatland forest		
5.3.1 Kuremaa	Not Justified	
5.3.2 Meleski	Not Justified	
5.3.3 Kõrgeperve	Not Justified	



1. ASSIGNMENT

1.1 Background

In July 2021, the Dutch Centre for Research on Multinational Corporations (SOMO) published a report named “*Wood pellet damage. How Dutch government subsidies for Estonian biomass aggravate the biodiversity and climate crisis*”, authored by Sanne van der Wal, to establish whether the co-fired pellets in Dutch power plants are produced in compliance with Dutch criteria for sustainable biomass. The focus of the research was on the production of wood pellets in Estonia (EU Member State) by the Estonian company Graanul Invest, which is Europe’s biggest wood pellet producer and an important supplier to Dutch pellet plants. The report is making allegations of non-sustainable forest management in Estonia by both the State Forest Management Centre (RMK) and Graanul Invest. The report was commissioned by Greenpeace Netherlands.

We were informed that Greenpeace and four other eNGOs used the report as their basis to pull out of the Dutch Covenant Sustainable Biomass, which is a voluntary agreement with the energy utilities and Energie Nederland (RWE, Uniper, Onyx Power, Vattenfall) that has been the foundation for the current biomass sustainability policy framework in the Netherlands. Subsequently, the other signatories of the Covenant requested a peer review of the report by a third party, an expert organisation that is familiar with Estonian forestry and forest management.

On behalf of the energy utilities, Dutch Biomass Certification Foundation (DBC) approached Indufor Oy with a request to produce the peer review of the report.

1.2 Objective, Scope

The objective of the assignment is to provide DBC with an independent third-party peer review of the above-mentioned report. The scope of the review is a factual judgement and commenting of the statements and the conclusions made in the report. The review focused on the following:

- Checking the statements presented in the report, focusing on their truthfulness, significance and relevance.
- Verifying the sources used and estimating whether they are correct, scientific, neutral and trustworthy.
- Evaluating some of the presented cases and methodologies used.
- Evaluating the chain of logic – do the facts presented lead to the conclusions stated?

The review process was focused on the report contents only, as agreed with the client. No fieldwork was carried out.

2. OUR APPROACH

Our approach has been based on the academic tradition of an independent peer review, based on the written statements and sources presented, and the verification of the facts to the extent possible. Our analysis of the peer review is presented as follows:

3. High Conservation Value Forests
 - 3.1 Woodland Key Habitats
 - 3.2 EU Protected Forests Habitats
 - 3.3 Protected Species
 - 3.4 Cross-trees
4. Watersheds
5. Peatland Forests
6. Other
 - 6.1 Summary and Context
 - 6.2 Language
 - 6.3 Authors and Sources
 - 6.4 Method and Logic.

For each section, we give a table of our observations on the report's statements, and a discussion section to explain the complexities of issues.

In addition to the report itself, we have reviewed additional material received from the stakeholders and maps of the cases presented. We interviewed the representatives of Graanul Invest and RMK, as well as the auditors from Preferred by Nature. (Annex 1).

Some restrictions to our approach are worth mentioning. The assignment was carried out in three weeks. During this time, it was not possible to carry out a field trip to verify the cases on-site. Original raw data was not available so we could not verify that.

3. HIGH CONSERVATION VALUE FORESTS

3.1 Woodland Key Habitats

The section of the report dealing with WKHs is full of partial truths and the descriptions of the cases are simplified. The section does not consider the inventory and registration requirements of the WKH for assigning protection status under government regulatory procedures.

Table 2 Our observations on the woodland key habitats chapter

No	Statement (chapter, page)	Indufor Comment
1	...and how they may be linked to Dutch wood pellets imports. (3.1 Context, page 15).	Thus, the linkage between the forest management practices discussed in the report and the import of pellets has not been established.
2	By looking for such characteristics, experts can make estimations about the presence and surface of WKHs in forest areas where they have not been assessed and registered properly. Based on these assessments, ELF estimates that, over the last decade, at least 5,700 ha of such unregistered WKHs have been clearcut in state forests. This is particularly high as in the beginning of 2021 only 26,479 hectares of woodland key habitats were registered in Estonia altogether. (Page 16, endnote 54).	<p>(1) For WKHs to be registered in the state database and receive a conservation status, it is necessary to inventory them by a trained and licensed expert. Such an expert does not have to work for government agencies, he or she can act on behalf of an NGO. It is not clear from the report whether the mentioned experts were licensed for WKH inventories.</p> <p>(2) Up to 25% of the potential WKHs proposed by NGOs are rejected by the Environmental Board due to non-compliance with state criteria on WKHs. The rejected sites of potential WKHs do not have a ban for logging under state regulation.</p> <p>(3) The unreferenced statement "...in the beginning of 2021 only 26,479 hectares of woodland key habitats were registered in Estonia altogether" is incorrect. The area of WKHs registered in Estonia at the beginning of 2021 was more than 31 thousand hectares. This mistake was indicated in Graanul's response but was not corrected by the authors of the report.</p>
3	Woodland key habitats are inventoried by the Estonian Naturalists Society (ENS). In recent years 25 cases were reported by ENS in which experts identified new woodland key habitats to be registered that had already been logged by the State Forest Management Centre. From 18 of these cases, it could be ascertained that timber was sold to Graanul Invest's wood pellet production companies. (Page 16, endnotes 55, 56).	<p>(1) The reader of the report can evaluate only 5 cases given in the report. There is no appendix to the report with supplementary data about the rest of the indicated cases. It is unclear why these 5 cases were presented but 18 were mentioned. Moreover, no proof was provided that these 18 areas were WHKs in the SOMO report.</p> <p>(2) The phrase "it could be ascertained..." adds ambiguity to the report. It is not clear whether the fact (that timber was sold to Graanul Invest's companies) has been ascertained (i.e., proved) or it is only assumed by the authors of the report.</p>
4	Photo 4: A WKH near Harjuküla village which was logged before it could be registered as such. © Estonian Land Board, 26 May 2021 (Page 21).	The report does not provide photos indicating the potential damages after logging (as it is done for the Tromsi case). Thus, it is unknown if the Harjuküla case has been visited. If so, it is unclear why no photo of identified damages is presented.

Discussion

The concept of woodland key habitats (WKHs) is applied in Nordic and Baltic countries as a tool to protect biodiversity in commercial (productive) forests. The concept of WKHs assumes the conservation of small valuable habitat patches. In Estonia, large-scale inventories of WKHs were conducted by the state agencies in 1999-2002 and 2018-2020. As of January 2021, 12.700 of WKHs with a total area of 31.520 ha was registered in Estonia (the average size of the WKHs is 2.5 ha). In state-owned forests, the protection of WKHs is based on government regulation and the FSC forest certification standards. In private forests, the protection of WKHs is voluntary and based on compensation agreements between the forest owner and the state.

In Estonia, there are two lists of WKHs: "official" and "unofficial". The "official" list includes WKHs which are registered and approved by state agencies as a result of the inventory by a trained and licensed specialist (they can be outside from RMK). All "official" WKHs are included in a publicly available state-led database and protected. The "unofficial" (or unregistered) list of WKHs is developed by environmental NGOs based on their inventory. NGOs propose new WKHs for the registration in the state-led database, however, it occurs only after verification by a licensed specialist. About 75% of NGOs' proposals are accepted by the Environmental Agency and the rest of NGOs' proposals do not meet the state criteria for WKHs, i.e. they are not registered in the state database and not protected. The report presents 5 cases of logging within unregistered WKHs (from an NGOs' list) in RMK's forest land. The RMK confirms that 3 of the 5 sites were visited by a licensed expert on WKHs before logging and the expert confirmed that WKHs' criteria were not met in those sites. According to RMK, the remaining 2 sites have not been visited by the expert because they did not meet the age or other criteria set for potential WKHs.

However, WKHs are also considered beyond the state regulation – within the framework of FSC certification. Forest management in RMK's forests is FSC-certified, hence RMK should follow not only state regulation but non-state FSC standards. Internal FSC forest management standards of audit companies are focused on "official" WKHs. Under FSC, WKHs are considered as 3rd type of high conservation values. RMK complies with FSC standards related to WKHs. However, the RMK states that since 2014, there has been a procedure according to which anyone can inform the RMK about a potential conservation value (e.g., WKHs) in the state-owned forest to carry out a field verification by the RMK. Moreover, the RMK notes that they welcome input from all stakeholders and ensure that the identified conservation values are protected.

Compliance with the SDE+ requirements by Graanul Invest is implemented through SBP certification. Following SBP endorsed Regional Risk Assessment for Estonia, certified companies shall have "systems and procedures to identify and address potential threats to forests and other areas with high conservation values from forest management activities". WKHs are a part of Indicator 2.1.2 "Potential threats to forests and other areas with high conservation values from forest management activities are identified and addressed". This indicator is the only in the regional risk assessment which has a specified risk. It means that companies sourcing material must mitigate the risk of WKHs material entering into their biomass production. The measures related to indicator 2.1.2 are focused on "official" WKHs represented in the national EELIS database. However, the level of risk for this indicator is specified for uncertified private forests only, and risk is low for state-owned forests, which are FSC and PEFC certified. Thus, under SBP, there are no special measures for WKHs in the case when Graanul Invest buys wood harvested in FSC-certified RMK's forests.

All of the cases of logging in potential WKHs (in the opinion of ELF and SOMO) are located in the forests of the RMK. The fact of purchasing wood from these forests by the Graanul Invest has not been proved but only "could be ascertained" as indicated in the report. Lack of evidence raises questions about the reliability of the report. It is unclear why for some cases, only photos from the land are shown, for others - only aerial images. Thus, it is unknown if all cases have been visited. If so, it is unclear why photos of identified damages are not presented. None of the

presented cases has been provided with GPS coordinates that could be used to verify them independently, which reduces the credibility of the report.

Combining all potential WKHs (inventoried by the ENS) cases presented in the report, a total of 3.9 ha was logged and possibly damaged. This represents 0.01% of the total WKHs' area in Estonia (considering that about 25% of potential WKHs proposed by NGOs are not meet the state criteria on WKHs, the actual impact is lower). Thus, it cannot be concluded that pellet production in general and Graanul Invest, in particular, poses a high risk for WKHs in Estonia. However, in some cases, forestry practices in WKHs can potentially lead to a loss of high conservation values, despite full compliance with both state regulation and non-state certification standards. However, a loss of high conservation values is related to "unofficial" or potential WKHs only, while "official" WKHs are properly protected.

3.2 EU Protected Forests Habitats

Table 3 Our observations on the EU protected forests habitats chapter

No	Statement (chapter, page)	Indufor Comment
5	However, from 2008 to 2018, 1,663 hectares of protected Annex 1 forest habitats in Estonian Natura 2000 areas were lost, half of which from 2015 to 2018. Logging in Natura 2000 areas has intensified in 23 per cent of the areas containing protected Annex 1 forest habitats. (Page 22).	There is no reference to the data source. The data source is unknown. It is not possible to verify this claim as there is no public dataset indicating the location of the stands that were logged.
6	The increased logging intensity is the result of logging restrictions increasingly being lifted. Between 2011-2020, 56 per cent of all regulations in Natura 2000 areas that were changed were due to more permissive logging rules. Four-fifths of these more permissive logging rules were changed between 2015 and 2018. (Page 22, endnotes 59 and 60).	Endnotes 59 and 60 indicate the organization (<i>Estonian Fund for Nature (ELF) & Estwatch</i>) rather than the data source (a report, publication, web page, etc.). Thus, the data source is unknown.
7	A 106-year-old wet spruce forest with a lot of deadwood and structure characteristic to Habitat Directive type Fennoscandian herb-rich forest, with <i>Picea abies</i> (9050) can be seen in the picture in Photo 6. This forest has never been mapped as such although it grows in Otepää nature park, which is part of the Natura 2000 network. This forest also has active clear-cut forest permits on it and it belongs to Valga Puu, a Graanul Invest subsidiary. (Page 22).	An acting clear-cut forest permit does not mean (does not evidence) non-compliance with requirements on high conservation value forest.
8	Among the many threatened and endangered bird species that have been negatively affected by logging are the black grouse, capercaillie, Northern goshawk, woodlark and tree pipits. (Page 22, endnote 65)	Reference 65 indicates the name of the ornithologist (Renno Nellis) rather than a scientific article or report which could be considered as a verifiable source of data.

9	In Box 2, there are two examples of Natura 2000 forest habitats on Graanul Invest-owned land: one habitat that has been logged before the SDE+ criteria applied, and one habitat that has not yet been logged but for which logging permits have been issued. (Page 22).	In the first case, habitat has been logged before the SDE+ criteria applied, and in the second case, a habitat has not yet been logged. Thus, none of these cases can be considered as evidence of a violation of the Dutch criteria for sustainable biomass. The reason why the two cases have been included in the report is questionable.
10	This section presents cases of destructive logging of known protected species' habitats and nesting sites on Graanul Invest-owned forests. By comparing maps, ELF found 184 cases where forest height loss overlaps with habitats of protected forest species with an overlap of more than 0.01 hectares between 2014 to 2018. (Page 24).	References and/or supplementary materials (maps, photos, coordinates, description, etc.) are needed as an appendix to prove these 184 cases. Otherwise, statements look seem to be drawn on loose grounds.
11	A nearly two hectare-sized area of the habitat type Fennoscandian herb-rich forests with European spruce trees (<i>Picea abies</i>) on land owned by Graanul Invest was clearcut. (Page 23).	This case presents in the discussion between Graanul Invest and SOMO. It was mentioned that the felling was done to control insect infestation. However, SOMO puts an opposite viewpoint that old, damaged trees are good for wildlife, therefore, should not be touched. On the one hand, dead wood is one of the criteria for identifying high conservation value forests. On the other hand, the spread of insect pests can threaten forest areas outside high conservation value forest sites, and then sanitary felling is required. Bark beetle can destroy a mature spruce stand. In the case of large-scale storm damage in managed mature forests, sanitary felling is required to avoid the economic loss caused by the deterioration of timber quality (to eliminate the risk of bark beetle outbreak which often follows in the storm-damaged forest).

3.3 Protected Species

Table 4 Our observations on the protected species chapter

No	Statement	Indufor Comment
12	By comparing maps, ELF found 184 cases where forest height loss overlaps with habitats of protected forest species with an overlap of more than 0.01 hectares between 2014 to 2018. Below, four cases are presented that show evidence of non-compliance with the SDE+ criteria, and one (see Box 3) that dates from before these criteria were operational. (3.5 Protected species, page 24).	<ul style="list-style-type: none"> (1) The reason why the report addresses logging before SDE+ criteria were operational is unclear and raises questions. (2) It is not known how many of the 184 cases mentioned in the report date from before the SDE + criteria were put in place. (3) It is difficult to have a proper understanding of the impact on habitats of protected forest species without supplementary materials on the analysis of ELF. (4) There is no explanation why these particular cases are presented in the report and others are not.

No	Statement	Indufor Comment
13	However, it was found that destructive logging took place in a Graanul Invest owned forest area in this park, which destroyed a registered habitat of this bird. (Page 24).	The study does not provide enough justification on how much the logging activities were destructive and how much they destroyed the habitat of the bird. This might be categorised as guesswork and seems to be an exaggeration. Need to present the actual magnitude of the effects, otherwise, this is only the authors' opinion.
14	Photo 7: Parksi, Harju County, Lahemaa Natura 2000 area. The red line marks the land unit of Karo Mets OÜ forest company. The green line is the habitat of the three-toed woodpecker and pink is forest loss/clearcut from 2014-2018. © Estonian Land Board, May 2021. (Page 25).	(1) The quality of the photo does not allow us to identify the forest loss/clearcut case. The case was not provided with GPS coordinates that could be used to verify it independently. (2) The boundaries of the habitat of the three-toed woodpecker can be relative. To identify the actual damage to the bird, a more accurate study/investigation is needed.
15	Lahemaa National Park, North Estonia, is designated to protecting the three-toed woodpecker, among other aims. (3.5.1, page 24, endnote 68).	Does not exclusively mention “three-toed woodpecker”. This bird species is one among many other protected species in the national park.
16	Destructive logging has taken place of a mapped habitat of hazel grouse on Graanul Invest owned forest land in Nomme, Pärnu County, West Estonia. Destructive logging has taken place in the mapped habitat of the red-breasted flycatcher on Graanul Invest-owned land in Karjasoo, Viljandi County, Central Estonia. (3.5.2, page 25. Photo 8 on page 26).	The photos show a possible impact on the habitat. However, an inventory is needed to estimate the extent of the impact of logging on the population of protected bird species.
17	It (Northern goshawk) is considered vulnerable in the Estonian Red List with a 30 per cent decline in sighted birds over the last 10 years. (3.5.4, page 27)	The statement has not been provided with a reference
18	The bird is documented to have abandoned its nest. Graanul Invest is known to have purchased wood from this logged HCVF habitat. (3.5.4, page 27, endnotes 71, 72 and 73).	RMK replied to SOMO that this case has been examined during an FSC audit in 2020. The audit has indicated that the required nesting site buffer zone was protected. In August 2020, a local ornithologist confirmed that the nest was still inhabited and in active use. However, this information was ignored in the report. This fact raises questions about the objectivity of the report.

Discussion on EU Protected Forest Habitats and Protected Species

The EU protected forests habitats and habitats of protected bird species are designated under the EU Habitats Directive and EU Birds Directive respectively. Protected habitats are also known as Natura 2000 habitats. Natura 2000 habitats are integrated into the Estonian nature conservation legislation and taken under protection in accordance with the Nature Conservation Act of Estonia. These habitats consist of strict protection zones (core areas) and buffer zones. In strict protection zones, management is prohibited and logging may occur only in case it is needed to restore or maintain an ecosystem or a habitat (to restore seminatural habitats or water

regime). In buffer zones, logging (including clearcutting), may be allowed in case deemed not harmful to the conservation values.

Logging in Natura habitats may occur in case they are not regarded as priority conservation targets of a protected area or they do not possess sufficient ecological quality to merit protection.- In addition, in cases of outbreaks of insect pests or to prevent such outbreaks (for instance, after windstorms), sanitary felling may be agreed upon in Natura habitats (permitted by the Environmental Board). Besides, not all territories of the Natura areas are covered with Natura habitat types. For instance, buffer zones may also contain forests that do not qualify as Natura habitats and they have only the role of being a buffer around the strict protection zones. Logging in Natura areas can only take place if the Environmental Board has reviewed the felling application and is convinced that the planned felling is in compliance with conservation rules and is not endangering the conservation values.

The report presents two cases of logging within Natura 2000 habitats and five cases of logging in protected bird species' habitats, all are in Graanul Invest-owned land (the rest of the cases mentioned in the report, related to habitat disturbances, cannot be reviewed, because no supplementary materials on them are provided). None of these cases is illegal logging because felling permits were obtained and justified under the state regulation. Nonconformities with forest certification standards (FSC forest management in RMK's forests and SBP in Graanul Invest's forests) related to the management and conservation of habitats have also not been identified. Some cases of logging in protected habitats were justified as sanitary felling. However, the issue related to sanitary felling is very controversial. Some believe that storm-felled or wind-broken trees should be removed as soon as possible to reduce the risk of bark beetle outbreaks in the future. They consider the removal of trees that have been freshly infected by bark beetle as the main measure to control and eliminate bark beetle outbreaks (forestry-oriented viewpoint). While others are convinced that all dead wood should be left in the forest as an important habitat and a source of biodiversity. They believe that without human intervention, bark beetle outbreaks usually disappear within a few years, but with human intervention, it can last for many years (ecologically oriented viewpoint).

The report does not provide any statistical information covering the whole of Estonia but instead is based on individual cases. The presented cases with logging can hardly be called critical for the network of protected habitats in Estonia, which is protected under government regulation. At the same time, the justification of carrying out certain forestry practices presented in the report, including sanitary felling, is a controversial issue. In individual cases, such practices can potentially lead to negative impacts on habitats. It is noteworthy that forest certification (both SBP and FSC) does not impose additional requirements for the protection of habitats and is based on the requirements of government regulation. Although forest certification could play a more active role in the process of finding trade-offs on habitat management and conservation between different stakeholders and forest owners. The presented cases of logging in EU protected forests habitats and habitats of protected bird species cannot be considered as an aggravation of biodiversity in Estonia or nonconformity with the Dutch sustainable biomass criteria.

3.4 Cross-Trees

The tradition of marking cross-trees is respected in Estonian forest management. However, due to lack of information, occasionally the harvesters fail to conserve the trees.

Table 5 Our observations on the cross-trees chapter

No	Statement	Indufor Comment
19	Since 2002, 25 cases of harm to cross-trees by the State Forest Management Centre (RMK) have been reported. ⁷⁶ In these cases, cross-trees were either logged or seriously damaged. (Section 3.6, page 28, endnotes 76, 77, 78).	It shows that practice for the conservation of cross-trees exists in RMK forests, however, the practice fails about once a year.
20	The five most recently documented cases of cross-tree felling in state forests, the wood had been sold to Graanul Invest. (Page 28).	The link between the logging site and timber buyers is not direct. The wood from different logging sites may get mixed in the log landing if the sources are verified to be equally low risk and certified (e.g., wood from RMK). Even if such mixed wood is still checked from databases (according to Graanul Invest, they apply such a practice), getting a clear confirmation of a particular destination for a single tree and/or partial volume basis is very difficult. Thus, we believe that the link is arbitrary and cannot be verified.
21	Two cross-trees in Partsimõisa, Põlva County, South Estonia, were logged in December 2020 (see Photos 10 and 11). In its answer to an FOI request issued by ELF, RMK confirmed that timber from this subcompartment was sold to Osula Graanul OÜ. (Subsection 3.6.1, page 28).	It is impossible to identify that two cross-trees were sold to Osula Graanul OÜ because the wood from different logging sites gets mixed and from log landings timber was delivered to several different clients. FSC CW does not apply when Graanul Invest's companies buy wood from RMK because RMK is FSC certified. The link between logging in Partsimõisa and Graanul Invest is arbitrary.
22	Photo 11: An aerial photo of the Partsimõisa site before the area (in yellow) with cross-trees was logged. © Estonian Land Board, 24 July 2017. (Subsection 3.6.1., page 29).	The photo alone does not provide enough background to make a proper understanding of the case. The authors did not provide photos showing the plot before and after the cut.
23	In Tinnipalu, Võru County, South Estonia, a cross-tree was logged in 2019 (see photos 13, 14 and 15). In its answer to an FOI request issued by ELF, RMK confirmed that timber from this subcompartment was sold to Osula Graanul OÜ. (Subsection 3.6.3, page 30).	Timber (but not necessarily a cross-tree) from this subcompartment was sold to different customers, Osula Graanul OÜ among others.
24	A few cross-trees were left after logging, but were damaged because no buffer zone was left around them. (Photo 21, subsection 3.6.5, page 33).	Buffer zones around cross-trees are not required by government regulation. Under the FSC forest management, there is also no special requirement on buffer zones around cross-trees, i.e., a forest manager may decide what kind of buffer zone is the most appropriate in a particular case.

Discussion

Cross-trees is an old cultural tradition in Estonia related to the funeral ritual of local communities. In Estonia, the Board of Heritage is responsible for the mapping and registration of cross-trees in a database. The cultural heritage specialist of the Environmental Board is responsible for providing information about newly identified cross-trees to the Land Board. The Environmental Board is also responsible for informing the forest owner when felling permit is approved near cross-trees. The mapping is based on information received from “owners” of cross-trees and forest owners, and sometimes the Board of Heritage is not informed or the quality of information is not sufficient to locate the trees properly. In accordance with the FSC Centralized National Risk Assessment for Estonia, about 50% of cross-trees are mapped and included in the database. Thus, the mapping of cross-trees is an ongoing process. Mapping and registration of cross-trees in the database is important as it is very difficult to visually identify a cross-tree and save it during harvesting operations. Even a registered cross-tree can be difficult to find when the tree is old and the cross on the bark becomes less visible.

Buffer zones are required around cross tree stands, which have been taken under legal protection. Other cross-trees or stands-of cross trees are not under the protection of the law but are regarded as valuable cultural heritage and their protection is required by FSC-certification and stakeholder groups. Buffer zones around cross-trees are required in the FSC Control Wood (FSC CW): clear-cutting is forbidden in a 50-meter buffer zone, but selective cutting and sanitary cutting are allowed. However, FSC CW does not apply in the situation when Graanul Invest buys wood from RMK because RMK is FSC certified forest owner. In accordance with the FSC forest management standards (which are applied to RMK), there is no special requirement on buffer zones around cross-trees, i.e., a forest manager may decide what kind of buffer zone is the most appropriate in a particular case.

Since 2018, the RMK has been following the procedure of a voluntary agreement to respect the cultural and spiritual value of the cross-trees, including cooperation with stakeholders on the conservation of buffer zones around cross-trees. According to the agreement, operations around cross-trees must follow the recommendations of experts on how to maintain a cross-tree and a buffer zone around it. RMK declares its commitment to this agreement. The maintenance of cross-trees is also indicated in FSC forest management certification requirements. RMK follows the FSC standard on cross-trees in general, but there has been nonconformity with the FSC standard on the procedure of consultations with stakeholders about cross-trees. Moreover, RMK admits that there have been cases when cross-trees, recorded in the database, have been accidentally cut due to incorrectly recorded location in the database, road safety or human errors.

Cross-trees and cross-tree stands are present in Southern Estonia and affect forest management in relatively minor areas (no one is motivated to cut such trees to profit from the sale of the timber). Thus, cutting of cross-trees occurs unintentionally, either when the location of cross-trees is not indicated in the database (or indicated inaccurately), or by mistake of loggers. Cutting of cross-trees can occur during road construction or for safety reasons, e.g., when standing cross-trees are dangerous for people working in the forest.

Cases of cutting of cross-trees, described in the report, raise many questions regarding their accuracy and provability. However, even if we assume that all five cases of cross-tree cutting are presented accurately, this cannot be considered as the aggravation of high conservation and cultural values in Estonia. The mentioned 25 cases of cutting or damage to cross-trees that appeared during 2002-2020 (recognized by the RMK) indicate that there is an attempt to conserve cross-trees. It shows that the conservation of cross-trees is applied in RMK forests, however, the practice fails about once a year. The RMK states, that the situation has improved since the cross-tree database was made public and the procedure of pre-logging site visits of cross-trees together with an expert has been implemented. Thus, the section of the SOMO report on cross-trees does not prove a violation of the SDE+ standard. The identification and protection measures of cross-trees (a high conservation value with fundamental importance to the traditional culture/beliefs of the local population) are implemented as SDE+ requires.

4. WATERSHEDS

4.1 Observations

Our direct observations on the statements presented under chapter 4 Watersheds in the SOMO report are below. Similar to the issues described earlier in our report, the cases presented have not been provided with GPS coordinates and thus our review has been limited by the analysis of the photo materials presented, supported by the independent search of the cases in the public databases/maps and interviews with Graanul Invest and the auditors.

Table 6 Our observations on the watersheds chapter

No	Statement	Indufor Comment
25	4.2 Criteria (Section 4.2, pages 35 and 36).	The authors did not present other important criteria that are in the standards related to the SDE+, namely SBP, FSC and PEFC. Indufor did check those and the key findings are presented later in the text.
26	Based on the Water Act of Estonia, there is a water protection zone of 10 metres from the banks of rivers, streams and large (main) ditches where logging is not allowed, unless permitted by the Estonian Environmental Board (Section 4.3, page 36).	The authors did not indicate the chapter and paragraph of the Water Act of Estonia, as well as the definition of the mentioned water bodies, which may have different rules to apply.
27	During 2018-2019, in total 54 hectares of water protection zones, were clearcut on land belonging to three Graanul Invest forestry companies. This represents 7 per cent of all water protection zones on Graanul-owned lands (Section 4.3, page 36).	The authors did not mention how these 54 ha and 7% were defined/calculated, as well as did not break down the identified area per waterbody type (mentioned in the previous comment). This is important information for evaluating the magnitude of the statements on the potential unsustainable activities on the lands belonging to Graanul Invest, as well as the accuracy of the analysis that the authors used to make the statements.
28	4.3.1 Vasara (Subsection 4.3.1, page 36). 4.3.6 Sõrandu (Subsection 4.3.5, page 42).	(1) It seems that the presented water body is an artificial recipient of a land improvement system or a waterway that relates to it. (2) Estonian legislation regulating the maintenance of land improvement systems allows forestry activities, including cuttings, in the areas specified in case 4.3.1 and thus the case cannot be considered as a violation of the SDE+ criteria or at least cannot be so until the case is provided with more data for the external assessment.
29	4.3.2 Kivioja (Subsection 4.3.2, pages 37 and 38). 4.3.4 Kivila oja (Subsection 4.3.4, pages 40, 41). 4.3.5 Madara (Subsection 4.3.5, pages 41, 42).	(1) It seems that the presented water body is a brook (or spring), for which the water protection zone should be at least 10 meters, and where forestry activities are forbidden unless permitted by the Estonian Environmental Board. Graanul Invest provided Indufor with a copy of the harvesting permit for the case so the activity was at least legal. (2) For Kivioja, the phrase “mostly natural forest stream” gives an impression that the stream is not fully natural, and this might be misleading for the reader.

No	Statement	Indufor Comment
		(3) For Kivila oja, the phrase “mostly natural bed” gives an impression that the bed is not fully natural and this might be misleading for the reader.
30	4.3.3 Vastsekivi oja (Subsection 4.3.3, page 39).	The presented water body is a brook (or spring), for which the water protection zone should be at least 10 meters, and where forestry activities are forbidden unless permitted by the Estonian Environmental Board
31	Moreover, in most of the cases highlighted above, there is evidence of particularly damaging aspects of logging operations: tractor tracks, washed away soil, clearcutting on sloped areas and newly dug ditches (Section 4.4, page 43).	(1) It seems that the authors have not fully grasped the applicability of local legislation and the certification standards regarding forestry activities around water bodies and thus at least some of the stated cases cannot be considered as the violation of the SDE+ criteria or should be additionally studied to provide more data for readers. Therefore, it is an exaggeration to call the authors’ findings evidence. (2) Newly dug ditches were not considered in the report.
32	The highlighted cases are all clearcuttings in forests owned by Graanul Invest companies. This means that not only do these practices violate the Dutch biomass criteria but they also violate those of the sustainable forestry and forest product standards PEFC and SBP that the company uses to show compliance with the Dutch criteria. (Section 4.4, page 43).	Misleading. Please check section 4.2.

4.2 Discussion

The significance of the proper management of natural watersheds cannot be underestimated, especially in forest areas that serve an important role in producing reliable and high-quality water in streams, lakes, and wetlands to support social needs and ecological dimensions. The authors state it clearly in the SOMO report by indicating the main functions of forest watersheds and describing the general negative impacts of inadequate forest watersheds management on these functions. The authors presented several cases in the report attempting to draw analogies of the inadequate practices with Graanul Invest. Indufor reviewed all presented cases and the key observations are presented below.

Similar to the issue described earlier in our report, the cases have not been provided with GPS coordinates and thus our review has been then limited by the analysis of the photo materials presented in the report, the results of which might be subjective. Overall, not all presented cases seem to be unambiguous. As far as we can conclude, the major tensions lie in the difference between the management practices that are allowed/suggested by the local legislation and the certification standards in place, the relevant criteria from SDE+, and the authors’ opinions. Since the authors referred to compliance of the identified practices with the SDE+ criteria in their report, we prefer to ground on facts of applicability of these criteria. It is important to understand how the SDE+ criteria are related to the local regulatory documents and how possible contradictories (if any) can be reflected.

In the SOMO report, the authors used the following definitions for the water bodies and, in some cases, generalized them to watersheds and/or the water protection zones. (“a water body” (4.3.1 Vasara case)

- “mostly natural forest stream” (4.3.2 Kivioja case)
- “a small natural forest stream” (4.3.3 Vastsekivi oja case)
- “a forest stream in a mostly natural bed” (4.3.4 Kivila oja case)
- “a small river in a natural bed” (4.3.5 Madara jõgi case)
- “main ditches” (4.3.6 Sõrandu case).

Since the presented cases have not been provided with their GPS coordinates, we did a visual assessment of the photos presented to make a reclassification of the water bodies according to the terms, which are at least similar to those used in the local regulatory documents and the related certificates. The target was to make the terms comparable. The cases have been classified as follows:

- artificial recipients of land improvement systems (4.3.1 Vasara case)
- brooks or springs (4.3.2 Kivioja case)
- brooks or springs (4.3.3 Vastsekivi oja case)
- brooks or springs (4.3.4 Kivila oja case)
- brooks or springs (4.3.5 Madara jõgi case)
- artificial recipients of land improvement systems (4.3.6 Sõrandu case).

After the water bodies were classified according to the local practices and regulatory documents, the question has been made to the violation of the SDE+ criteria regarding waters relevant to land improvement systems (4.3.1 Vasara case and 4.3.6 Sõrandu case). To make a proper analysis, we first checked how the SDE+ criteria regulate the issue. As it was described earlier in our report, the SDE+ criteria are directly linked to SBP, which is an independent certification scheme approved by the Dutch government as a mechanism to verify the indicators of SDE+ criteria. The SBP certification system refers to the criteria and indicators of local PEFC and FSC standards. Indufor did a cross-check of these three main standards to have more understanding of the authors’ references to violations.

The Estonian SBP, PEFC and FSC indicators regarding the activities around water bodies refer to the national regulations. The PEFC national forest management standard for Estonia indicates the following:

- 13. Land improvement in the forest shall be carefully planned (IS Cr. 5.5)
- 13.1. In managed forests suffering from excess humidity, new land improvement systems shall be constructed in justified cases;
- 13.2. If new systems are constructed in an area of more than 100 hectares, an environmental impact assessment shall be conducted.
- 13.3. Existing land improvement systems shall be maintained in good working order.
- 13.4. Maintenance, renovation and reconstruction of land improvement systems shall proceed from valid legislation.

Among other things, the NEPCon Interim FSC Standard for Assessing Forest Management in Estonia indicates the following:

- 5.5 Forest management operations shall recognize, maintain, and, where appropriate, enhance the value of forest services and resources such as watersheds and fisheries.
- 10.2.2 Buffer zones along watercourses and around water bodies shall be established according to regional best management practices or local laws and regulations. Buffer zones should be indicated on maps.
- 10.6.3 Forest operations shall not degrade water quality or negatively impact local hydrology.
- 10.6.4 Where negative impact on soil or water resources is identified, FMO shall take steps to reduce or eliminate such impacts.

Under FSC, water protection zones are considered as HCVFs 3. The FSC Centralized National Risk Assessment for Estonia says that the forest management actions in the water protection zone, coast and waterside protection zone and on vulnerable soils are regulated by Water Protection Act, Nature Conservation Act, Forest Act and other related acts. The SBP-endorsed Regional Risk Assessment for Estonia indicates (among other things) that the Law of Water and the Nature Conservation Act should be used to evaluate impacts on water bodies from forest management (Table 7).

Table 7 Sub-section 2.2.6 of SBP-endorsed regional risk assessment for Estonia

	Indicator
2.2.6	Negative impacts on ground water, surface water, and water downstream from forest management are minimised.
Finding	<p>The Law on Water regulates the protection and monitoring of water resources, including watercourses in forests, in Estonia.</p> <p>The Nature Conservation Act lists restrictions to different activities in different water protection zones. A special management regime is included in forest management plans or management documents of protected areas where forests are located in order to protect water bodies from damage, pollution, etc. All the maps of the different water protection zones are available in forest management plans. Forest cuttings are allowed depending on the management and protection regime assigned to the forest group.</p> <p>Using residuals to build temporary bridges over ditches and springs is allowed, but there is a requirement to clean the residuals on completing the work.</p> <p>During the meeting held on 29 September 2014 with representatives of the Environmental Inspectorate it was concluded that the protection system is functioning well and there is no major risk in this area. The violations detected are small-scale, for example, some soil damage or small-scale cuttings in buffer zones. There is no major difference in compliance between the state forest and private forest. Where violations are detected in the state forest, the damage is rectified much more quickly.</p> <p>The risk is considered low for this indicator.</p>
Means of Verification	<ul style="list-style-type: none"> • Regional Best Management Practices • Supply contracts • Records of BP's field inspections

Source: SBP-endorsed regional risk assessment for Estonia.

The authors of the SOMO report referred only to the Water Act of Estonia. We also checked the other related Acts.

According to the Water act of Estonia (Chapter 5, § 29, Water protection zones), the extent of water protection zones from the usual boundary of the water shall be: 1) 20 m on the Baltic Sea, Lake Peipus, Lake Lämmijärv, Lake Pskov and Lake Võrtsjärv; 2) 10 m on other lakes, reservoirs, rivers, brooks, springs, main ditches and canals, and artificial recipients of land improvement systems; and 3) 1 m in artificial recipients of land improvement systems with a catchment area of less than 10 km².

According to sub-section 2 of section 4 of Chapter 5, § 29 of the act, the following activities, except others that are not relevant to the discussed issue, are prohibited within the specified water protection zones: cutting layers of trees and shrubs without the consent of the Environmental Board, except those carried out in artificial recipients of land improvement systems for the performance of work to manage land improvement systems.

At the same time, according to the Nature Conservation act of Estonia (Chapter 6, § 37, Limited management zones of shores and banks), the width of limited management zones of shores and banks, among others that are not relevant to the discussed issue, will be: 2) 100 meters on the banks of lakes and artificial lakes with an area of more than ten hectares, and on rivers, brooks and artificial recipients of land improvement systems with a catchment area of more than 25 square kilometres; and 4) 50 metres on the open artificial recipient of a land improvement system with a catchment area of 10–25 square kilometres. According to section 2 of Chapter 6,

§ 37 of the act, clear-cutting in the limited management zone of the shore is prohibited. In the limited management zone of the bank, the size of the cutting area may not exceed two hectares, except upon management of land improvement systems in the water protection zone of the artificial recipient of the land improvement system. Upon selective cutting and shelterwood cutting in the shore and bank limited management zone, the conditions provided for in this Annex to the Act must be considered.

It must be noted that "Shore" implies more a traditional beach at the ocean or a lake, with sand. "Bank" is usually used more with a river or creek, such as a riverbank, with mud.

The authors did not specify the catchment areas of the considered cases. The Acts presented above say that the treatments related to maintenance of land improvement systems in the water protection zones and the limited management zones of banks are allowed, which questions the authors' statements made for cases 4.3.1, 4.3.6, and 5.3.3. According to the Land Improvement Act of Estonia (Chapter 6, § 45, Management of land improvement systems), maintenance of land improvement system means keeping the system and its territory in good condition, including the clearing of any plants, as well as the removal, from the artificial recipient or drainage ditch, of obstructions impeding the flow, of debris and, to the extent provided in the legislative act adopted under subsection 5 of section 44, of sediments. According to SDE+ 8.2, the water balance and quality of both groundwater and surface water in the forest management unit (FMU) and downstream (outside the FMU) shall be at least maintained and where necessary improved.

However, the presence of water bodies in cases 4.3.1, 4.3.6, as well as 5.3.3, although they are artificial, is a fact and proper management of such bodies is needed. The artificial land improvement systems in forestry have been largely extended in the middle of the last century. The new systems are established rarely, and most of them are parts of the existing networks. The artificial land improvement systems were used to improve the growing conditions of local forests, increase accessibility, and contribute to the timber output mainly for use by industry. Such practices were common in the Baltic Sea Region, including Finland and Sweden. Besides positive effects (as the increased forest growth), the practices have been accompanied by negative impacts on waters, especially those are related to the drainage of forested peatlands. The topic is described by the authors in chapter 5 of the SOMO report (see next section in this report).

Cases described in sub-sections 4.3.2, 4.3.3, and 4.3.4 are more unambiguous, and some violations from the environmental point of view may have taken place. The photo materials presented in the report did not provide a sufficient base for the observed cuttings. Therefore, we did an additional search and with the help of local foresters checked the cases on the map. Besides, Indufor interviewed the representatives of Graanul Invest and Preferred by Nature. It seems that all cuttings have been provided with the required harvesting permits issued by the relevant authority. Graanul Invest shared the permits with Indufor. However, the environmental impact and the reasoning why the cuttings have been permitted are still not clear for some of the cases. As far as we understood from the interviews, auditors in Estonia do not check the issues of cuttings in the potential water protection zones precisely because the related risk was categorised as low in the latest FSC country risk assessment, and the PEFC standard recommends following the regulatory procedures.

Case 4.3.2, named Kivioja in the SOMO report and Remmeski soo FMU in the Graanul Invest records, seems to present the cuttings among the natural brooks (or springs) by Graanul Invest group's companies (Figure 1). The harvesting permit has been issued in 2017. The official register says the FMU was of a grey alder (*Alnus incana*) stand with the age of 49-54 years, which is considerable for grey alder. At this age, alder stands often have issues with the reduced health that might attract aphids or other insects, as well as the increased risk of the damaged trees falling, e.g., to the brook preventing its natural flow and water circulation. At the same time, this is usually a source of biodiversity but the role of the occurred cuttings for the surrounding landscapes should not be underestimated. We were not able to detect the reasoning for

permitting the harvesting, and as far as practices in other regions show (e.g., in Finland or even in Russia), at least some strips of trees or bushes are to be left to protect the watershed.

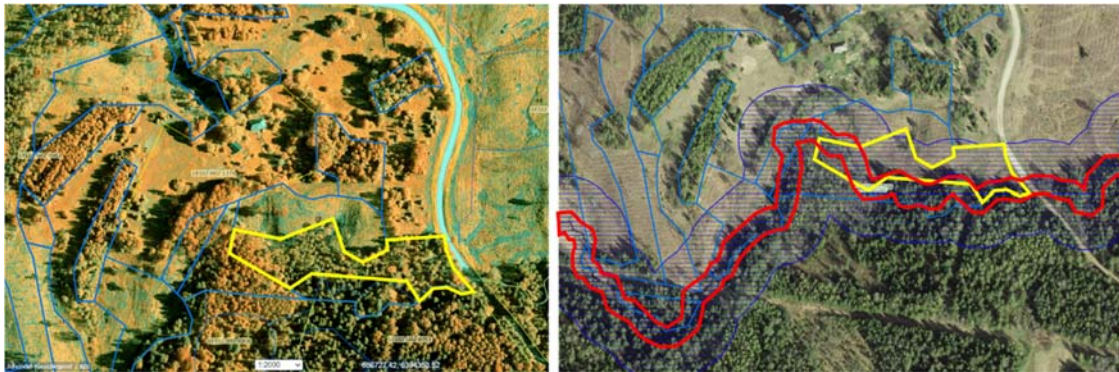
Figure 1 Case 4.3.2 Kivioja



Source: Forest Portal website (<https://register.metsad.ee/#/>).

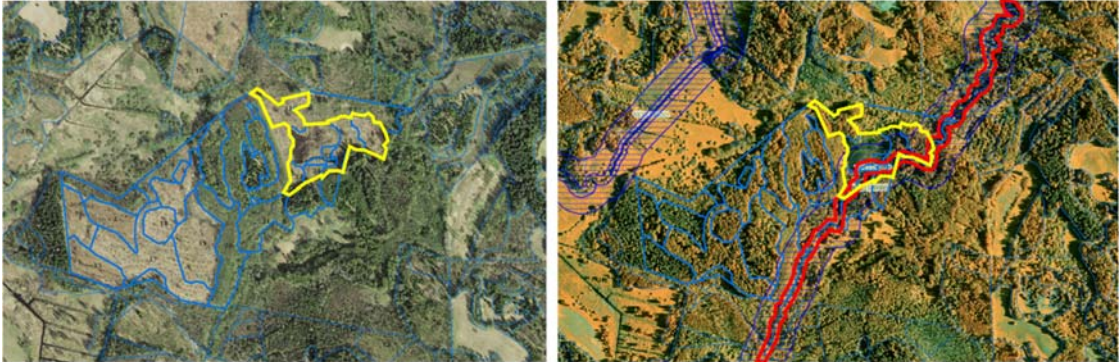
Cases 4.3.3 and 4.3.4, named Vastsekivi oja and Kivila oja in the SOMO report and Tuulekivi and Laiakõõ FMUs in the Graanul Invest records respectively, seem also have some cuttings close to the natural brooks (or springs) by Graanul Invest group's companies (Figure 2 and Figure 3), but the clear reasoning for permitting that cuttings and the actual damages were not able to detect. The issued harvesting permits mention that dead, damaged, storm sensitive and fallen trees can be removed.

Figure 2 Case 4.3.3 Vastsekivi oja



Source: Forest Portal website (<https://register.metsad.ee/#/>).

Figure 3 **Case 4.3.4 Kivila oja**

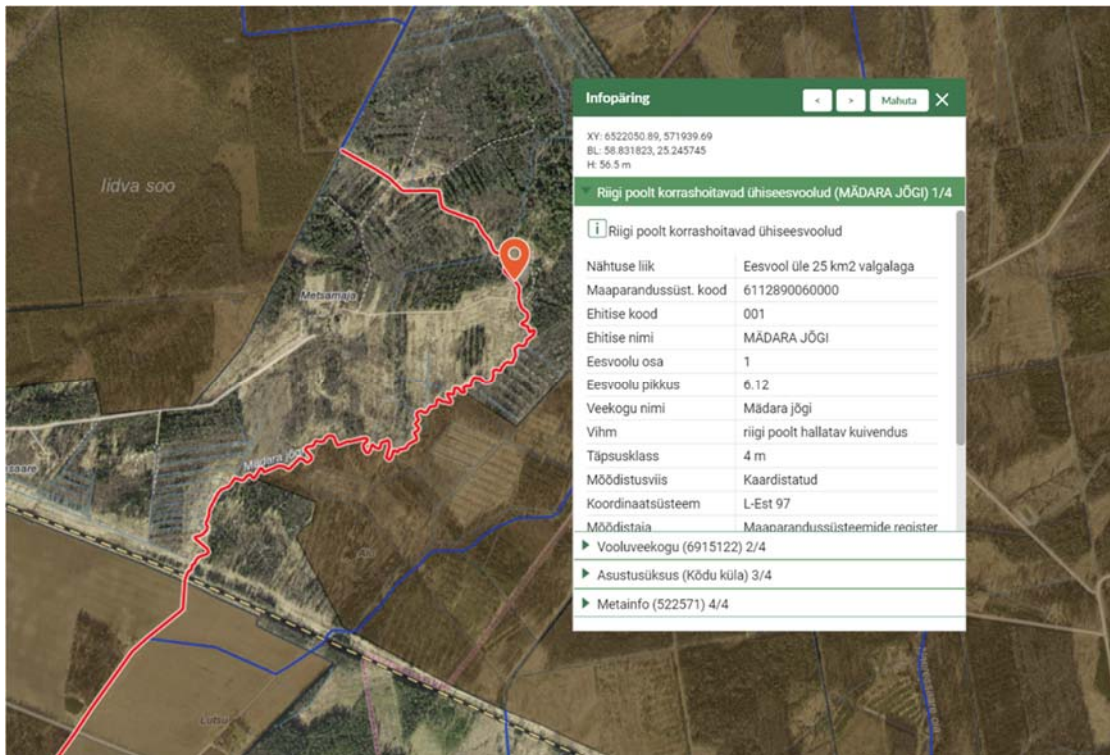


Source: Forest Portal website (<https://register.metsad.ee/#/>).

Certification auditors in Estonia do not check the issues of harvesting in the potential water protection zones because the related risk was categorised as low in the latest FSC country risk assessment, and the PEFC standards recommend following the procedures indicated in the local legislation. That can be a reason why cases 4.3.2, 4.3.3, and 4.3.4 were not checked in more detail in the earlier audits of the company.

Case 4.3.5, named Madara jõgi in the SOMO report and Annamaa FMU in the Graanul Invest records, seems to present harvesting next to natural brooks (or springs) by Graanul Invest group's companies (Figure 4), but according to Estonia's Maa-Amet registry, brook acts as an upstream recipient of the region/catchment area. Therefore, this falls under obligatory maintenance, which is under the Land Improvement Act (§ 47, § 48, and § 90), described earlier. Being a legal and even necessary practice, the harvesting in the area may nevertheless conflict with the ecological functions of the water body, but rather in terms of the forest land improvement system, made back in the Soviet time. Thus, the case might not be that unambiguous as the authors try to present it in the report.

Figure 4 Case 4.3.5 Madara jõgi



Source: Maa-Amet registry (<https://xgis.maaamet.ee/xgis2/page/app/maainfo>).

In our view, the authors have not fully grasped the applicability of local legislation and the related standards regarding forestry activities around water bodies and thus some of the stated cases cannot be considered as the direct violation of the SDE+ criteria. For example, in cases 4.3.1 and 4.3.6 (and 5.3.3), the loggings were conducted to maintain the land improvement systems, which is allowed by the local legislation and the standards in question. Case 4.3.5 fails under maintenance of the land improvement system too, although the logging may nevertheless conflict with the ecological functions of the natural brook (or spring) which acts as an upstream recipient of the region/catchment area. As for cases 4.3.2, 4.3.3, and 4.3.4, the relevant authorities have allowed cuttings to remove dead, damaged, storm-sensitive and fallen trees, but the operations may still have caused some environmental impacts. Taking pictures (or collecting some data samples where it is possible/reasonable) of such areas before harvests could help to avoid concerns raised in the SOMO report.

5. PEATLAND FORESTS

5.1 Observations

Our direct observations on the statements presented under chapter 5 of the SOMO report are below.

Table 8 Our observations on the peatland forest chapter

No	Statement	Indufor Comment
33	Peatlands and peatland forests are protected under Dutch criterion 3.1: 'Biomass is not sourced from permanently drained land that was classified as peatland on 1 January 2008, unless it can be demonstrated that the production and harvesting of the biomass does not result in water depletion of a previously undrained soil.' (Chapter 5.2, pages 44 and 45).	The definition of criterion 3.1 does not provide a clear understanding of whether it applies to the listed cases or not. See our analysis in the discussion section.
34	To date, RMK has already executed 130,000 hectares of drainage renovation works that partly overlap with peatland forests. (Section 5.3, page 45).	<p>(1) According to RMK, overall drainage renovation works are planned on the area of 0.5 million ha, which is about 80% of the company's total area of managed forest. The share of peatland soils in the drainage systems in managed RMK's forests is 37%.</p> <p>(2) The most common site types in the drainage renovation works include: <i>Polytrichum-Myrtillus</i>, <i>Uliginosum</i>, <i>Polytrichum</i>, <i>Alnus fen</i>, <i>Alnus-Betula fen</i>, Transitional bog, <i>Oxycoccus</i>, Raised bog, <i>Sphagnum</i>-bog, <i>Myrtillus</i> drained swamp, and <i>Oxalis</i> drained swamp.</p>
35	5.3.1 Kuremaa (Pages 45 and 46). 5.3.2 Meleski (Pages 47 and 48). 5.3.3 Kõrgeperve (Pages 49 and 50).	<p>(1) The activities, incl. cuttings under the planned drainage renovation works are ongoing in the Kuremaa case at the moment of writing.</p> <p>(2) The renovation of existing drainage systems is carried out to sustain the increased yield of timber on drained lands. The decision to renovate all the drainage systems in state lands was made by RMK about 20 years ago, because at that time, the functioning of the drainage systems originating from the Soviet era, started to deteriorate. As far as we were able to check the most critical elements of the used drainage renovation works during the interviews with RMK (e.g., arrangement of sediment collection ponds and controlling the water levels), the practices seem to follow the latest available standards, which are used for example in Finland or Sweden. The quality was not able to check since the works are still ongoing.</p>

No	Statement	Indufor Comment
		<p>(3) An internally conducted environmental impact evaluation is conducted by RMK before any drainage systems renovation and measures are planned to minimize the negative environmental impacts.</p> <p>(4) However, the assessment does not include carbon release/balance estimation.</p> <p>(5) The authors did not provide any data to prove that the practices led to water depletion, nor that the wood harvested from this case area goes to Graanul Invest.</p>
36	The surrounding area vegetation, with very little Sphagnum cover, suggests that peat layer formation has stopped as a result of the drainage system constructed in the 1970s or 1980s (Subsection 5.3.1, page 46).	Reference is missing, so we cannot verify this statement.
37	Carrying out renovation of the ditches would mean opening the peat soils to oxidation and would cause carbon release, as well as accelerating the growth of trees around it (that have not yet reached minimum cutting age; Sub-section 5.3.1, page 46).	We agree with this. However, the renovation does not mean that additional oxidization of peat occurs, rather one can conclude, that the decomposition of peat, triggered by drainage systems in the Soviet era, continues with this renovation. The actual release (if any not compensated by other factors) is to be studied. To prevent (or reduce) carbon release in the relevant perspectives, proper control of water levels in the area (soils) is important.
38	The site types vary in the area and are mainly classified under <i>Vaccinium myrtillus</i> drained peatland and oligotrophic bog (Sub-section 5.3.2, page 47).	The actual distribution of the area on types is missing to get an understanding of the magnitude of the considered types.
39	In the picture above (see Photo 35), it can be seen that deforestation of the ditch edges has already been carried out. From the picture, it is also clear that the soil has been damaged with the thick black peat layer being exposed. This will cause carbon to be released from the peat soil (Subsection 5.3.2, page 48).	The road presents the tractor track to clean/harvest the ditch edges (blue lines in the photo). We agree that this practice will probably cause some carbon to be released from the peat soil but this might be relatively marginal and the growing forest on both sides (it seems to be a pre-mature pine stand) should be able to capture the released carbon.
40	Recent clearcuts have been carried out in the Meleski region that are accelerating carbon release from the peat soils (Photo 36; subsection 5.3.2, page 48).	According to RMK, the area in photo 36 is not located in the area belonging to the planned drainage renovation in the state forest in Meleski. The authors did not present any test results/references indicating the carbon release for this case.
41	Sites in Kõrgeperve state forest are mostly classified under Oxalis drained peatland (Subsection 5.3.3, page 49).	The actual distribution of the area on types is missing to get an overall understanding of the magnitude of the Oxalis drained peatland type.
42	Photo 38 shows an example of the clearcut felling near ditches in Kõrgeperve state forest. In this case, deforestation has been carried out next to the Põdraoja stream.	This falls under maintenance of the water improvement system, which is a legal and even obligatory practice. The topic was described earlier in this report.

No	Statement	Indufor Comment
	The stream's natural water bed has been reshaped in the past so that it flows straight (Subsection 5.3.3, page 50).	
43	Soil damage is a common sight in Kõrgeperve (see Photo 39). This means that carbon (CO ₂) is being released from the peatland soils (Subsection 5.3.3, page 50).	This is true. Carbon (CO ₂) is released from the peatland soils when the road was constructed.
44	The above-mentioned cases of drainage renovation works are taking place on peatland forests that were formerly undrained bogs or wet peatland forests. As such, these permanently drained lands were classified as peatlands on 1 January 2008 as the application of criterion 3.1 requires (Section 5.3, page 51).	According to RMK, all cases listed in the SOMO report are renovation of existing drainage systems, which are registered in the national drainage systems registry. These lands were drained at least earlier than 1.1.2008 and as such, by definition, they cannot be regarded as undrained. We agree with the RMK on this issue.
45	The intention, of course, is the depletion of the water level of larger areas (Section 5.3, page 51).	The intention is to reduce the water level, not deplete it. Details in the discussion section.
46	The use of logs from peatland forests where drainage restoration works take place also violate criterion 4.1. This is because drainage causes the peat soil to release more CO ₂ than the increased tree growth on top of the drained soil can compensate for. This means that carbon stock from what is formally called forest management units is not retained in the medium or long term, as the criterion explicitly requires. (Section 5.3, page 51).	The practices of drainage restoration work on peatland forests might be related to the increased carbon release. However, the proper analysis/study is needed before any statements regarding the carbon release can be done (i.e., whether to agree on the authors' statements in the report or refute them). The only relevant point here is the fact that neither RMK nor Graanul Invest does not control/monitor the CO ₂ emissions in their forest management activities, which might be considered as a violation of the SDE+ standards. A more detailed discussion of the issue is presented in subsection 5.2 of our report.
47	These risks, however, have not been taken into account in management plans of forests or in different national studies such as the National Forestry Plan. Because of these practices and the increased but unaccounted emissions from drainage renovation works in the models, the national GHG reporting is in fact also underestimating actual CO ₂ equivalent emissions from drained peatland (Section 5.3, page 51).	The issues of carbon emissions from drained peatland forests have just recently been raised the public discussions (before, the issues were discussed mainly among academics), thus the management plans have probably not addressed it yet properly (not only in Estonia). The issue of monitoring carbon emissions in the drainage restoration work and other forest management practices might be very expensive.
48	The wood logged for drainage renovation works is marketed in exactly the same way as other wood logged in forests managed by RMK. Because all RMK wood is FSC certified and FSC wood is fully accepted in SBP, it can be sold as SBP-certified and in principle enter the Dutch market as being compliant with the Dutch criteria. Or, while it cannot be proven that this wood will also	It is true, but it is more related to potential non-conformities according to criterion 4.1, but not to 3.1 since RMK seems to follow the procedure of arrangement and controlling water level to prevent its depletion.

No	Statement	Indufor Comment
	directly also end up in wood pellets combusted in the Netherlands, there is currently no effective mechanism to prevent this from happening. (Section 5.3, page 51).	
49	Indeed, there is direct evidence showing that Graanul Invest has recently sourced wood from peatland forest owned by RMK. (Section 5.3, page 51).	Wood, coming from RMK's forest area to Graanul Invest companies with the FSC stamp is considered as wood from sustainable sources by default and no double-check is required. Discussion on wood purchased from RMK is presented in Table 1.
50	The main argument RMK and Graanul Invest make in response to these draft findings is that drainage of peatland forest lowers carbon emissions overall in the medium and long term. In other words, while soil peat oxidation leads to higher emissions, these are more than compensated by increasing carbon capture as a result of the accelerated growth of trees. (Section 5.3, page 51).	A proper analysis/study is needed before any statements regarding the carbon release and capture can be done on a specific case. Every case might have different conditions and impacts on the carbon release. The authors' reflections on the feedback from RMK and Graanul Invest included only general speculation on the topic, which is important and relevant, but does not necessarily apply to the cases mentioned under chapter 5 of the SOMO report.
51	By way of inspiring confidence in their forestry practices, the RMK also argues that environmental impact assessments (EIA) need to be carried out before any drainage restoration works. However, these EIAs do not take into account carbon sequestration or balance (Section 5.3, page 52).	This statement is correct. RMK's EIAs do not calculate the carbon balance of the forestry operations. To be fair, it should be noted that quite a few companies worldwide operating in the boreal zone may have such estimations conducted regularly.
52	Similarly, Graanul Invest strongly disagrees with the conclusion that drainage restoration is causing new depletion. While in fact drainage restoration may not be considered new depletion of water on a historic scale – i.e. water levels may have been similar a few decades ago – it is of course, by definition, depletion on a shorter time scale. Otherwise, there would be no need to restore drainage. (Section 5.3, page 52).	The purpose of drainage restoration is to reduce the water level to keep growing conditions of the forest landscapes that they can be more productive in the longer term. However, this should be done in a proper way to not lead to depletion (too low water level) that would harm the growing conditions and also release more carbon.

5.2 Discussion

The exploitation of forest peatlands/wetlands is environmentally sensitive, especially in the boreal zone countries. Often, the areas were intensively drained during the second half of the last century. The purpose was to lower the water level and increase the fertility of the soil to provide better growing conditions and access to the forest. The drainage works were done with the attendant decisions, technology, and knowledge of that time, and often led to water pollution by excess nutrients and particles leaking to surrounding lakes and rivers.

Today, the new drainages are rarely done, and countries like Estonia and Finland only maintain the existing drainage networks. The practices of maintaining the drainage systems have been

significantly improved and are based on engineering projects that plan the location and function of every ditch, optimum water levels, its movement and catchment. The pollution of water bodies is strictly controlled. Arrangement of sediment collection ponds is a must. Every drainage project is carefully planned and all are agreed upon with the authorized environmental or other relevant authorities.

With raising the issues of global warming and climate change, the drainage of peatland/wetland areas have been heavily criticised, which is fair. However, the criticism is still on the academic level, supported by the environmental activists' statements, and there is no consensus on the issue and no practical guidelines yet. The certification schemes do not provide guidelines either. According to the latest SBP-endorsed regional risk assessment for Estonia, the level of carbon-related risk was kept "low", meaning that no special measures to monitor the impacts are required. The situation is similar in Finland.

Although the quantity of the carbon release from the drainage works on peatlands is difficult to estimate, the issue lacks a common understanding/resolution with clear practical instructions accepted by all stakeholders. On one hand, the best solution may seem to be the conservation of such areas. On the other hand, carbon can be released from the loss/decay of old/dead trees that may also be an issue in the longer term. The impact assessments are often rather subjective in the public discussions and highly depend on the stakeholder group(s) in question. However, it is difficult to deny that the probable solution might be keeping peatland forests growing well, where at least some management regime is used. Especially, this is true for the peatland forests which have been drained.

The issue of using wood from peatland forests is a major challenge for sustainable development overall, including the specific cases that were discussed in chapter 5 of the SOMO report. The authors presented three cases of logging activities in peatland forests by the RMK and under section 5.1 "Context" promised to provide evidence that these activities lead to water depletion and carbon release. We did not find evidence in the report. The main argument of the authors has been a non-compliance with the SDE+ standard, namely to criterions 3.1 and 4.1.

Being originally developed mainly for the Dutch conditions, the definition of criterion 3.1 creates at least a few questions that are critical to an understanding the potential non-compliances. Criterion 3.1 says: "*Biomass is not sourced from permanently drained land that was classified as peatland on 1 January 2008, unless it can be demonstrated that the production and harvesting of the biomass does not result in water depletion of a previously undrained soil*". The questions are:

1. Does it apply to timber harvested on the areas of peatland forest, to peat extracted from peatlands, or both?
2. Does it apply to sourcing from lands of peatland that were drained before or after 1.1.2008?
3. Does it apply only to previously undrained peatlands (i.e., natural peatlands, which were classified such on the moment of 1.1.2008) or all kinds of peatlands (i.e., both previously drained and undrained peatlands).

Likely, the criterion should apply to all kinds of biomass, incl. timber, peat and others. If looking at criterion 3.2, which says: "*Biomass is not sourced from land that was converted from a wetland to an alternative, dryer ecosystem after 1 January 2008*", then criterion 3.1 likely refers to the period before 1 January 2008. The third question is then critical. If it applies to previously drained peatlands, all cases presented in the SOMO report should be under criterion 3.1, specifically under indicator 3.1.2:

- 3.1.1 "*The economic operator shall demonstrate that the biomass is not sourced from permanently drained land that was classified as peatland on 1 January 2008, unless Indicator 3.1.2 applies*"
- 3.1.2 "*If Indicator 3.1.1 cannot be fulfilled, the economic operator shall demonstrate that the production and harvesting of the biomass does not result in water depletion of a previously undrained soil*".

However, according to indicator 3.1.2, RMK activities should show that they **do not** cause water depletion of previously undrained soils. We checked the listed cases and they are all related to the renovation of existing drainage systems, developed in the 1970s and 1980s. The renovation works are registered in the national drainage systems registry. The cases are conducted in the areas of previously drained soils, which contradicts the applicability of indicator 3.1.2 and therefore, the entire criterion 3.1. The analysis shows that the interpretation on the field is, at least, not clear and can be rather subjective.

If, however, we assume that indicator 3.1.2 applies to the mentioned cases of RMK activities, the critical point is to understand whether the company complies with the standard or not, which can be drawn from the analysis of their practices that should not result in water depletion. The authors of the SOMO report did not provide any data confirming that. The main argument was that any drainage, by definition, leads to water depletion. However, the purpose of drainage restoration is to reduce the water level to keep growing conditions of the forest landscape that they can be more productive in the longer term. This should be done in a proper way to not lead to depletion (too low water level) that would, opposite, harm the growing conditions (trees will lack water) and may also release more carbon. At the same time, the excess water should not go directly to the natural water bodies since it contains nitrogen and particles that may harm the functions of the natural waters. For example, the sediment collection ponds are to be used then.

The drainage renovation works conducted currently by RMK in the State's forests were planned and are implemented according to the master plan, developed by the specialized institution of Estonia about 20 years ago. The decision to renovate the drainage systems was made to keep the systems functioning since they started to deteriorate after the establishment back in Soviet time. Every case is provided with the engineering project documentation agreed upon with the state authorities. All activities are legal. As far as we were able to check the most critical elements of the used drainage renovation procedures during the interviews with RMK, the practices seem to follow the latest available silvicultural standards, which are used for example in Finland or Sweden (e.g., arrangement of sediment collection pond and controlling the water levels). We were not able to check the quality of the work. Besides, internal environmental impact assessment is carried out before any drainage restoration works start, including water impact assessment.

Based on the analysis of the listed cases, by having the mentioned input data presented in the SOMO report and collected during the interviews, it can be said that cases 5.3.1, 5.3.2 and 5.3.3 should comply with criterion 3.1 of the SDE+ standard (if it is generally applicable to the cases).

However, as was mentioned earlier, any drainage renovation works, especially on peatland forests, might cause a risk of carbon release. This is a scientific fact, which might be an issue not just in Estonia, but also in Finland, Sweden and other countries. Criterion 4.1 of the SDE+ standard says: *"The forest management unit where the wood is sourced is managed with the aim of retaining or increasing carbon stocks in the medium or long term"*, and indicator 4.1.1 of the criterion specifies that *"The economic operator shall provide clear and sufficient evidence that the harvesting rates and methods ensure that carbon stocks, in terms of tree stands or other carbon proxies, are maintained or increased in the medium or long term"*. To do so, the carbon balance assessments are to be included, for example, in the environmental impact assessments (or similar) and the resolution might require significant changes in the overall approach of the drainage renovation works in Estonia, approved by multiple stakeholders. The carbon balance assessments are currently not done by the operators, including RMK and Graanul Invest, as the monitoring of the impacts is not required by the latest SBP-endorsed regional risk assessment.

If any reconsideration of the related risk assessment is planned, it should be based on proper carbon stock/balance analysis and assessment of the impact of the drainage renovation works (if any). The boundaries of the analysis are critical. As we said, the drainage renovation works might release some carbon into the atmosphere but at the same time, it can be compensated/mitigated by other aspects which should also be considered. After such an analysis, the impact of the drainage renovation works may still be considered low and the risk assessment update will not be needed.

The topics raised by the SOMO report are relevant and important for forestry in Estonia and the development of sustainable biomass sourcing practices in general. However, the presented cases lack solid arguments and, in our view, cannot be considered as a violation of the SDE+ standards, at least until more empirical data is provided to check the applicability of criteria 3.1 and 4.1. The authors of the SOMO report did not provide any data to prove the RMK practices led to water depletion or carbon release, being argued only by the general observations and discussions in the literature. Besides, the authors did not provide any data to prove the wood that would be harvested from these cases was delivered to Graanul Invest and then to the Netherlands. The authors of the SOMO report presented three cases of logging activities in peatland forests done by RMK and promised to provide evidence that these activities lead to water depletion and carbon release. Indufor did not find the evidence in the report, although we understand that the activities may cause the mentioned harms if are performed with improper planned practices.

6. OTHER OBSERVATIONS ON THE REPORT

6.1 Summary and Context

Our direct observations on the statements presented under chapter 1 of the SOMO report are below. As some of these are directly linked to the other chapters of the report, we refer to the discussion in the relevant section.

Table 9 Our observations on the summary and context of the report

No	Statement	Indufor Comment
53	The use of wood pellets for energy production has been contested for many years in the Netherlands. Critics are concerned about air pollution and aggravating the climate crisis instead of combating it. This is because combustion of wood pellets immediately produces CO ₂ , which can only be compensated by reforestation in the long term. In 2020, the controversy flared up following media reports on the link with clearcutting in high conservation value forests in Baltic countries. (Summary, page 4).	The last sentence is poorly related to the topic discussed prior. It seems that the authors intended to link clearcutting with the production of CO ₂ when burning wood pellets, which are two issues to be considered separately.
54	Over the last decade, 1,663 hectares of registered Natura 2000 forest (EU protected areas) habitats have been logged as well as 5,700 hectares of unregistered Woodland Key Habitats (protected areas in Estonia). (Page 5).	Discussed under subsection 3.2.
55	All of the above were supposed to be protected under the Dutch criteria. (Page 5).	(1) The Dutch sustainable biomass criteria (SDE+) require identification, protection and monitoring of sites with a high conservation value with the involvement of affected and interested stakeholders (Indicator 7.1.1.). Indicator 7.1.1. mentions nothing on local regulation and rules. (2) Indicator 7.2.1 requires protecting or maintaining the presence of threatened or endangered species and their habitats through conservation zones (or protected areas). According to Indicator 7.2.1, the size and location of the conservation zones shall conform to national and local legislation (but shall be sufficient to guarantee the continuing presence of the identified species). Discussed under section 3.
56	However, while Graanul Invest claims the watersheds in the forests it owns are safe from logging for its Dutch energy company's clients to be eligible for subsidies, this research exposed logging on at least 7 per cent of all the company's water protection zones. The	Discussed under section 4.

No	Statement	Indufor Comment
	six presented cases all show logging in the form of clear-cuts. (Page 6).	
57	...it can be concluded that the production of wood pellets in Estonia regularly fails to comply with the Dutch criteria for sustainable biomass, as well as those of sustainable forestry (production) standards of SBP, Programme for the Endorsement of Forest Certification (PEFC) and FSC. Moreover, this report shows that the type of harmful logging revealed in this report is also likely to be linked to Dutch wood pellets imports. (Page 6).	Discussed under section 3.
58	The research for this report also found that the company does not have systems and procedures in place to prevent wood from other controversial logging sites being used to produce wood pellets. These findings therefore highlight that the wood from destructive logging may end up being combusted in coal power plants and in other biomass plants in the Netherlands. (Page 6).	This part of the report conflicts with other parts of the report. If there is no wood traceability system (according to the authors), then it is unclear how the authors prove the facts of the purchase of wood from controversial sources by Graanul Invest companies. Wood traceability is controlled by state regulation and under forest certification. State regulation includes control and monitoring at the level of forest inventory, harvest permit application and harvesting reports. Graanul Invest applies procedures to prevent the wood from controversial logging sites under forest certification. Wood, coming from any RMK's forest area to Graanul Invest companies are considered wood from sustainable sources by default since RMK's forest management is FSC-certified. Wood, coming from non-certified but controlled wood sources is under the FSC Control Wood certification system. To separate and verify certified wood from non-certified wood and non-controlled wood, Graanul Invest applies PEFC and FSC chain of custody certifications (as indicated in the report). Also discussed under subsection 3.1.

No	Statement	Indufor Comment
59	While increased logging pressure is not the only cause, the last remaining old-growth forests that are rich in rare species are in notable decline. In forest areas that benefit from special legal protection status, such as Woodland Key Habitats (WKHs) and Natura 2000 forests, destructive logging is taking place regularly. (Page 11).	<p>(1) Due to the lack of adequate data on logging in Estonia's old-growth forests in the report, it is difficult to conclude how “destructive” and “regular” such logging is and how “notable” the decline of the area of old-growth forest.</p> <p>(2) The report notes that “<i>only 14 per cent of all Estonian forests is strictly protected...</i>” and that “<i>Various degrees of protection (e.g., limits to clearcutting) also apply to an additional 11.3 per cent of forests</i>”. To assess whether this is enough or not, we can turn to the Convention on Biological Diversity. The Aichi target 11 of the Convention requires countries that by 2020, 17 per cent of terrestrial and inland water are conserved through effectively and equitably managed, ecologically representative and well-connected systems of protected areas and other effective area-based conservation measures. Nationally designated protected areas cover 21,8 %, protected areas under the European Nature Directives (Natura 2000) cover 18,1 %, protected areas under one or both of these categories cover 25,6 % of the EU's land territory. https://www.eea.europa.eu/themes/biodiversity/protected-areas/facts-and-figures/number-and-size-of-protected-areas-1). In the EU, 23% of forest lands are part of the Natura 2000 nature protection network https://www.europarl.europa.eu/factsheets/en/sheet/105/the-european-union-and-forests). The share of protected forests in Europe for the conservation of biodiversity is 15% of the total forest area. https://foresteurope.org/state-europes-forests-2020/). Thus, the situation in Estonia regarding forest conservation (14% of strictly protected forests and 11.3% of partially protected forests) is in line with international nature conservation obligations.</p>
60	To produce a tonne of wood pellets, the equivalent of 2.24 m ³ of solid wood is needed. This means that, in 2020, 2.9 million m ³ of solid wood equivalents was used to produce 1.3 million tonnes of wood pellets. Half of the feedstock to produce wood pellets in Estonia consist of primary wood or logs classified as energy wood. (1.4.2 Deployment and production, page 12).	Also, Preferred by Nature (Nepcon) mentions under endnote 34 that “...the data NEPCON have analysed show that the vast majority of the wood used to produce wood pellets is from different types of residues from the timber processing industry.” The authors do not quote the source in full. It says: "The remaining 39 per cent of wood pellets are made from wood that comes directly from forests, for example in the form of thinning wood, branches, treetops and tree trunks".
61	They are often produced from branches and other logging debris which are not used to produce wood pellets and	Endnote 34 referred to above, says the opposite.

No	Statement	Indufor Comment
	therefore do not compete with wood pellet production over feedstock. (Page 12).	
62	However, domestic consumption of logs used to heat private Estonian homes does compete as a feedstock with wood pellet production. (Page 12).	Firewood used to heat homes is of a different quality than the wood used for wood pellets production. The word “logs” can be misunderstood as sawlogs.
63	Once the wood is accepted as being compliant with the companies’ sustainability standards to be processed as feedstock by Graanul Invest’s pellet plants, there is no further physically separated processing of feedstock from different sources and certifications. This means that Graanul Invest can potentially mix certified wood from any source to produce wood pellets. (Box 1, page 12)	Graanul Invest uses CoC certification to separate certified and controlled wood from non-certified and non-controlled wood. Wood certified at the forest level through FSC or PEFC schemes is considered SBP-compliant. The rest of the wood is evaluated using a risk-based approach if it is to count towards an SBP-compliant claim. Thus, Graanul Invest does not “mix wood from any source to produce wood pellets” for the Dutch market. Graanul Invest mixes SBP-compliant wood only.
64	For logged WKHs that were identified in state forests this way, possible links with Graanul Invest were identified by filing freedom of information (FOI) requests with the RMK to learn of the particular clients of wood from these areas. (Page 14).	Discussed under section 3.
65	For Chapter 4, an inventory was made of the coordinates of watersheds on the land of the three above-mentioned Graanul forest companies. (Page 14).	Discussed under section 4.
66	From 18 of these cases, it could be ascertained that timber was sold to Graanul Invest’s wood pellet production companies. (3.3, page 16).	Discussed under 3.4. The phrase “ <i>it could be ascertained...</i> ” adds ambiguity to the report. It is not clear whether the fact (that timber was sold to Graanul Invest’s companies) has been ascertained (i.e., proved) or it is only assumed by the authors of the report.)

As the objective of the report was to establish the compliance of the co-fired pellets in Dutch power plants with the Dutch criteria for sustainable biomass (SDE+), it is surprising that section 1.3, describing the criteria, does not mention that there are different demonstration requirements for category 1 and category 2 biomass.

The NEPCon SBP audit public summary report (22 October 2020) found no non-conformities. However, the audit was already completed by the date the SOMO report was published. The auditors have reviewed the report and concluded that it might affect the compliance with the Instruction Document 2E and therefore consider these comments are relevant. In the next audit (reassessment) they intend to focus on extensive stakeholder consultation, including the SOMO report concerns and its consequences over the compliance on SBP.

6.2 Language

The overall language is exaggerating and misleading. Words such as “controversial” (appears 5 times), “destructive/destroyed” (10), “harmful” (7), and “deforestation” (7) are used frequently, among other derogatory words, such as “sorry plight” and “substandard”.

The frequent use of the word “deforestation” (7) is, in our view, misleading. “Deforestation permits” are actually “harvesting permits”, and in most of the mentioned cases, the use of the word deforestation is about logging. According to FAO, deforestation is the conversion of forest to another land use or the long-term reduction of tree canopy cover below the 10% threshold.

Also, statements such as “wood may end up”, “possible links to Dutch imports”, “likely to be linked to”, “clearly not in line”, and “regularly fails” make some of the statements weaker, when actual proof has not been presented.

Reference is also made to “experts” who are other environmental organisations or activists. The “international cooperation of journalists” have obviously been fed material by the environmental NGOs.

Finally, the layout of the report is entertaining and “alerting”, with bright colours and large photos.

6.3 Authors and Sources

Authors

The report was commissioned by Greenpeace Netherlands and written by Sanne van der Wal from the Centre for Research on Multinational Corporations (SOMO), supported by the Estonian Fund for Nature (ELF). Below are brief descriptions of the author organisations.

The Dutch Centre for Research on Multinational Corporations (SOMO) is a critical, independent, not-for-profit knowledge centre on multinationals. Since 1973 it has investigated multinational corporations and the impact of their activities on people and the environment. The majority of SOMO’s funding comes from governments and private foundations. The main funders are the EC, The Dutch Ministry of Foreign Affairs, Open Society Foundation and Sigrid Rausing Trust. In addition, SOMO Services provides research, training and advice to public interest groups to help them increase their leverage with companies, to ensure the success of civil society campaigns, dialogues and partnerships involving companies.

Estonian Fund for Nature (ELF) is a non-governmental organization dedicated to nature conservation. Their mission is to preserve endangered species and their habitats, natural landscapes and natural associations typical of Estonia by promoting the sustainable use of natural resources, raising environmental awareness in the society and seeking solutions for preserving a clean environment for future generations. ELF is a politically and economically independent NGO with expertise in nature conservation. They aim to unite the state and science institutions, businesses and active citizens in their efforts of protecting common natural resources. ELF was founded in 1991 and became a Foundation in 1999. Through ELF’s initiatives, natural parks and wildlife preserves have been established and extensive inventories to map Estonia’s natural resources have been carried out.

The motivation of the report and the reasons for the selection of Estonia as the case country are not clear. Instead of Latvia, which is a more important supplier country of wood pellets to the Netherlands and for supplies of raw material for Graanul, the report mentions “...*the focus for this research was on Estonia, as it allowed cooperation with the strong research partner ELF that was available in the short time period available to complete this research project.*”. In our view, the United States or Latvia would have been more relevant case study countries for the Dutch energy sector.

It is recognized that both RMK and Graanul Invest were asked to comment on the different drafts of the report, although with a very short time frame, and only on chapters where they are concerned. The certification schemes SBP, FSC and PEFC schemes were contacted but not the conformity assessment bodies in charge of auditing and verification Graanul and their

supplier levels were not approached. In our view, the report could not have been written as it is now if the public evidence published by RMK and the Estonian Environmental Board had been consulted, too.

Also, the report mentions this: *“In a number of cases, ELF researchers also visited selected locations in Estonia to get a better understanding of the actual situation, and to be able to document negative impacts in more detail.”*

Sources

There are 122 sources, or endnotes, in the report. Some of the links are outdated, but we managed to find the source in question. Some of the sources are in Dutch. A lot of the sources are – instead of recognized scientific research papers – other environmental NGO reports, partly repeating the same arguments and statements that are already presented in the text. It is clear, that such sources do not add value to the statements.

While checking the sources, we found out that:

- *“The rise in logging intensity has negative consequences for biodiversity in Estonia.”* (Page 11). The source is ELF’s report instead of the data source (26).
- Endnotes 59 and 60 indicate the organization (*Estonian Fund for Nature (ELF) & Estwatch*) rather than the data source (a report, publication, web page, etc.). Thus, the data source is unknown.
- Reference 77 shows a “Description of the Cross Tree Map application”, not the mentioned experts advice.
- References 80,81,82,83,84 cannot be opened.
- Hiite Maja Foundation is only referred in the text as a source.
- *“... from 2008 to 2018, 1,663 hectares of protected Annex 1 forest habitats in Estonian Natura 2000 areas were lost, half of which from 2015 to 2018. Logging in Natura 2000 areas has intensified in 23 per cent of the areas containing protected Annex 1 forest habitats.”* No reference to the data source is mentioned.
- *“It (Northern goshawk) is considered vulnerable in the Estonian Red List with a 30 per cent decline in sighted birds over the last 10 years.”* (3.5.4 on page 27). The statement has not been provided with a reference.

6.4 Method and Logic

The research in the SOMO report focused on three types of wood pellet industry practices that ELF considers problematic ecologically:

- I. logging in high conservation value forest (HCVF) areas
- II. logging in watersheds.
- III. logging in peatland forests.

Woodland Key Habitats (WKH) were identified using the WKH inventory by the Estonian Naturalists Society (ENS). The Estonian Nature Information System (EELIS) database was used to identify registered habitats and sites of protected forest species. In the case of cross-trees, Hiite Maja Foundation documented cases were used.

Estonian Land Board provides forest loss¹ maps, which are created by comparing LiDAR-derived vegetation height models between two different periods. Forest loss maps for 2017-2019 were compared against the geographical location of Graanul Invest property to find any forest losses inside Graanul Invest forestland within the time frame. The identified forest loss areas within Graanul Invest property were compared to see overlapping with Natura 2000 areas, water protected zones, and cross-trees database. Identified cases were presented as evidence in the report. Woodland Key Habitat in the state forest area was compared with forest loss maps and logging permits issued to RMK. Graanul Invest buys timber from RMK, and to find the

¹ Forest loss is defined as forest height decreased by 5 meters and with an area of more than 0.25 ha

possible linkage between the logged area and the Graanul Invest, transactions were requested from RMK through Freedom of information (FOI). In the case of peatland, the focus was on the adequacy of the procedure to prevent the sourcing of wood from peatland. Some of the locations were visited by ELF and present real-time photos of the selected sites.

During the review, the consultant did not perform GIS analysis to investigate the accuracy of identified sites in the SOMO report. The methodology used in the report to identify forest loss areas is well illustrated and the resulted cases are based on the databases used to identify different focus areas, land ownership, and logging permits and transactions. Some of the watershed cases in the Graanul Invest property, presented in the SOMO report are missing photos. To get the overall picture of these sites, Forest Management Unit (FMU) ID for these cases was requested from Graanul Invest and checked from the forest portal website.

As stated above in several cases, some of the statements lack the generally agreed cause-effect relationships. Other statements are lacking the data and/or the source so that the reader is not able to verify the logic of the statements. The observation and the analyses do not always lead to the conclusions presented, or the statement is not justified.

For example, the statement on page 6 in the Summary, “*The range of unsustainable forestry practices documented in the report makes clear that problematic logging is widespread and frequent in Estonia.*” does not convince the intelligent reader of the justification of the analysis and the conclusion. Also, statements such as this, on the same page, “*Moreover, this report shows that the type of harmful logging revealed in this report is also **likely to be linked** to Dutch wood pellets imports.*” raise questions on the likelihood and the mechanisms of the link between the logging and Dutch wood pellet imports. These are not explicitly described in the text.

Below are some more examples with our comments.

Table 10 **Examples of statements with a weak logic in the report**

No	Statement	Indufor Comment
67	Therefore, focussing on a company with a significant presence in both a producing and importing country of wood pellets is convenient because it increases the likelihood that the specific forestry and production practices to be assessed relate to this company. (2.2 Research approach and data collection. Page 13).	Does this statement imply that since Graanul Invest has significant forest assets in Estonia, all potentially unsustainable forestry practices in the country are related to the company? We believe that the justification of this statement is not sufficient.
68	It proved to be too difficult to ascertain direct links with Graanul sourcing from these areas. The focus was therefore on assessing the adequacy of the procedures that the company has to prevent sourcing from these areas. (Page 14).	The authors did not find links on Graanul’s sourcing from peatlands, so instead claimed that the company does not have sufficient sourcing controls in place. Which they do, as has been mentioned earlier.
69	However, an investigation by an international cooperation of journalists published recently presented evidence that the loss of forest cover increased twice as fast in Natura 2000 area forests owned by Graanul than in that of other forest owners. Protected Annex 1 habitats outside Natura 2000 areas should be protected by conducting impact assessments before any hazardous economic activity, but this requirement has largely been ignored in Estonia. (Page 22, endnotes 62 and 63).	The authors link forest cover loss (in practice it is usually caused by logging) with potential impacts on Protected Annex 1 habitats (or similar) without presenting a proper cause-effect relationship. The authors link a general observation of ELF (reference 63) on ignoring “impact assessments before any hazardous economic activity” in Estonia with the Graanul Invest’s forest management activities without a proper cause-effect relationship.

70	Two cases were found where logging had taken place in capercaillie habitats located in Graanul Invest owned Natura 2000 forest. ... Because the logging in these forest habitats took place prior to 2018, the SDE+ criteria did not apply at that time. This means that, while these cases show violations of the SDE+ criteria, they cannot be considered evidence of actual non-compliance. (Box 3, page 24)	If the case cannot be considered as an example of actual non-compliance, what is the reason to include it in the report? The two cases were not presented in detail.
71	Carrying out renovation of the ditches would mean opening the peat soils to oxidation and would cause carbon release. (5.3 Drainage renovation, page 46).	Renovation does not cause additional oxidization of peat, it allows the continuation of the oxidization that was triggered by establishing the drainage systems in the Soviet era. This is discussed earlier in section 4.
72	The wood logged for drainage renovation works is marketed in exactly the same way as other wood logged in forests managed by RMK. Because all RMK wood is FSC certified and FSC wood is fully accepted in SBP, it can be sold as SBP-certified and in principle enter the Dutch market as being compliant with the Dutch criteria. Or, while it cannot be proven that this wood will also directly also end up in wood pellets combusted in the Netherlands, there is currently no effective mechanism to prevent this from happening. Indeed, there is direct evidence showing that Graanul Invest has recently sourced wood from peatland forest owned by RMK. Moreover, Graanul Invest is an important client of RMK. At least 8 per cent of wood (306,000 m ²) harvested by RMK was sold to Graanul Invest in 2020. (5.3 Discussion, page 51).	<p>(1) The first statement is correct and there is nothing wrong with it, as discussed in section 3.5.</p> <p>(2) The second statement, however, lacks logic. Since the procedures comply, why would there have to be an “effective mechanism to prevent this from happening”?</p> <p>(3) The last statement is again probably correct, (except for the m²) and has nothing to do with “effective mechanisms....”.</p>
73	This research found that Graanul Invest, a leading supplier of wood pellets to the Netherlands, is either directly linked to these controversial felling practices or does not have systems and procedures in place to prevent being so. (Conclusion, page 53).	The SOMO report (page 12, Box 1) indicates that the group’s three main forestry companies in Estonia (Valga Puu OÜ, Karo Mets OÜ and Roger Puit AS) have PEFC certification. All Graanul Invest’s production plants have SBP certification as well as PEFC and FSC chain of custody certifications.



Annex 1

List of Sources Used by Indufor in the Peer Review



Sources used by Indufor

Interviews:

Mihkel Jugaste, Head of Quality and Certification Systems, AS Graanul Invest

Kristjan Tönijsson, Member of the Management Board, State Forest Management Centre RMK.

Toomas Tammeleht, Auditor, Preferred by Nature

Asko Lust, Deputy Director of Traceability Department, Preferred by Nature, FSC, PEFC and SBP Lead Auditor, Trademark Expert

Documents and websites

BM Trada Graanul Invest Chain of Custody Certification Audit Report 13/12/2018

BM Trada Osula Graanul OÜ Chain of Custody Certification Audit Report 13/12/2018

Centre for Research on Multinational Corporations (SOMO) website, <https://www.somo.nl/>

EELIS website, <https://www.eelis.ee/default.aspx?state=1%3B-164545161%3Best%3Beelisand%3B%3B&lang=eng>

Estonian Forest Portal website, <https://register.metsad.ee/#/>

Estonia Fund for Nature (ELF) website, <https://elfond.ee/elf-en>

Estonian Naturalists Society (ENS) website, <https://www.elus.ee/index.php/en/library-2/>

FSC Chain of Custody Certification Report for Graanul Invest AS. 2019.

FSC Centralized National Risk Assessment for Estonia, website <https://fsc.org/en/document-centre/documents/retrieve/eabfc88d-ca96-44f8-9c43-57a208b00e21>

Graanul Invest. Final review of the SOMO draft Report. M. Jugste. 27.7.2021

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Graanul Invest press release “No actual violations were found in SOMO report”. 07.07.2021. <https://graanulinvest.com/news/no-actual-violations-were-found-in-somo-report/>

Graanul Invest Sustainability Report 2020

Harvesting permits for Tuulekivi teatis 2018, Remmeski teatis 2017, Laiaköö teatis 2018, Annamaa teatis 2014

Hiite Maja Foundation website, <https://hiis.ee/en/>

Land Improvement Act of Estonia 2018
(<https://www.riigiteataja.ee/en/eli/527122018003/consolide>)

Minutes of the RMK, EKO and ELUS meeting on WKH inventories Feb 27, 2019

Nature Conservation act of Estonia 2004
(<https://www.riigiteataja.ee/en/eli/530062021001/consolide>)

NEPCon Interim FSC Standard for Assessing Forest Management in Estonia, website <https://preferredbynature.org/es/file/10803/download?token=NHeyOFzA>

NEPCon. SBP audit report on chain-of-custody. 22 October 2020.

NEPCon OÜ. Evaluation of Osula Graanul OÜ Compliance with the SBP Framework: Public Summary Report

PEFC national forest management standard, website <https://www.pefc.org/discover-pefc/our-pefc-members/national-members/estonian-forest-certification-council>



PEFC certifications: “Valga Puu OÜ – Tõrva” – PEFC CoC; “Valga Puu OÜ” – PEFC FMM; “Karo Mets OÜ – Pärnu” - PEFC CoC; “Karo Mets OÜ” - PEFC FM; “Roger Puit AS” - PEFC FM. (<https://pefc.org/find-certified>).

RMK Review request response 3.6.2021

RMK Feedback regarding the management of drained peatland forests 14.06.2021

SBP’s comment on the second request to review information. Email dated 14.6.2021.

SDE+ criteria, website (<https://sbp-cert.org/sbp-approved-for-sde-biomass-categories-1-to-4/>).

Torp-Kõivupuu, Marju. Cross-trees in southern Estonian landscape and folk beliefs. 2007) (<https://hiis.ee/en/sacred-sites/sns2007/marju-torp-koivupuu>

Water Act of Estonia 2019 <https://www.riigiteataja.ee/en/eli/509122020007/consolide>



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