

BATANG TORU HYDROPOWER PROJECT

Factcheck and References
on Key Issues



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INTRODUCTION

The Batang Toru Hydropower Project is a planned hydro-electric power station that is under construction on the Batang Toru River in North Sumatra, Indonesia.

The project is being developed by PT North Sumatra Hydro Energy (NSHE) with main construction activities to be undertaken by the Chinese state-owned company Sinohydro. The project site is in the Batang Toru ecosystem which contains the only remaining habitat of the critically endangered Tapanuli orangutan (the recently described species *Pongo tapanuliensis*). Plans for the project have been controversial due to the anticipated impact on local people, the local environment in general, and the Tapanuli orangutan in particular. The IUCN (the global authority on the status

of the natural world) has called for a moratorium on project activities to enable a careful assessment of the likely impacts, before deciding how (or whether) to continue. With many contradictory claims being made about the project's potential impacts, this document identifies specific assertions made by NSHE and assesses them against the best scientific knowledge available.



SUMMARY

Several significant claims found in NSHE publications or press releases are identified as being inaccurate or misleading. In at least ten cases, assertions made in public-facing NSHE literature or on the NSHE website are found to be inconsistent with findings presented in earlier impact assessments

conducted on behalf of NSHE. Numerous other claims in NSHE publications, or directly attributed to NSHE staff in media articles, are found to conflict with findings in peer-reviewed literature and technical reports, or with the observations of established experts in relevant fields. Some of these relate to

the most controversial aspects of the project such as its impact on the Tapanuli orangutan and the ecology of the Batang Toru river, the demand for the power that the plant would produce, and the project's compliance with international investment standards.

APPROACH

Contested claims from NSHE are addressed in turn. For each, the nature of the concern is explained, the specific claim made by NSHE is quoted, and contradictory evidence is then detailed and referenced. In some cases the evidence comes directly from documents

commissioned by NSHE itself. In others, references are made to peer-reviewed scientific literature or other reputable studies. Occasionally there is additional insight in the form of personal comments from highly qualified experts acting in a professional capacity. Whilst various

documents have been circulated which argue for or against the project on particular issues, this review attempts to cover a broad range of subject areas but restricts itself to investigating the validity of specific claims made by NSHE.

NSHE DOCUMENT REFERENCES

Several source documents produced by NSHE are referred to throughout this report. For those not familiar with them here is a quick overview of the most significant ones.

- The first is the original environmental impact assessment report or ANDAL (Analisis Dampak Lingkungan) for the project which was produced in 2014, which is only available in Indonesian and consists of 532 pages.¹ (A previous ANDAL exists for an earlier version of the project², but is not cited in this report.)
- This report was followed up in 2017 by a further document which covered some of the same topics in more detail and brought in some additional topics, which was published in English (1,266 pages) and called the "Addendum Environmental, Social and Health Impact Assessment (ESHIA)".³
- In 2018 a report was produced by NSHE together with the NGO Pusaka Kalam (Pusat Kajian, Advokasi dan Konservasi Alam / Center for Nature Study, Advocacy and Conservation) based in

Bogor, entitled "Impact of Batang Toru Hydropower Construction on Primary Forest, Orangutan Population and Habitat, Drought and Flood, Greenhouse Gases Emission and Socio-Economic Surroundings" (English version 166 pages). This states that its purpose is to "provide scientific clarification/justifications on data/information that has been received by several researchers and nongovernmental organizations, who have raised objections/negative accusations toward the Batang Toru hydroelectric power plant development".⁴

- Following this a shorter, more accessible report (English version 78 pages) was produced entitled "PLTA Batangtoru "A Socially and Environmentally Responsible Development"", with a foreword signed by Sarimudin Siregar, Director of Dharma Hydro / NSHE and dated 5th October 2018. This document draws on previous reports in order to, as it says, "... express our research, fact-based findings and views on the reports those have been developing, which have caused misconception on the project ..."⁵

- An alternative and condensed version of this report was also produced (no date, English version 16 pages) with the title "Batang Toru Hydropower Plant – PLTA Batangtoru A Socially and Environmentally Responsible Development".⁶

- An additional 2-page document has also been circulated on NSHE headed paper entitled "Common Misconceptions about Our Projects", presenting alleged (but not attributed) criticisms of the project and responses to them.⁷

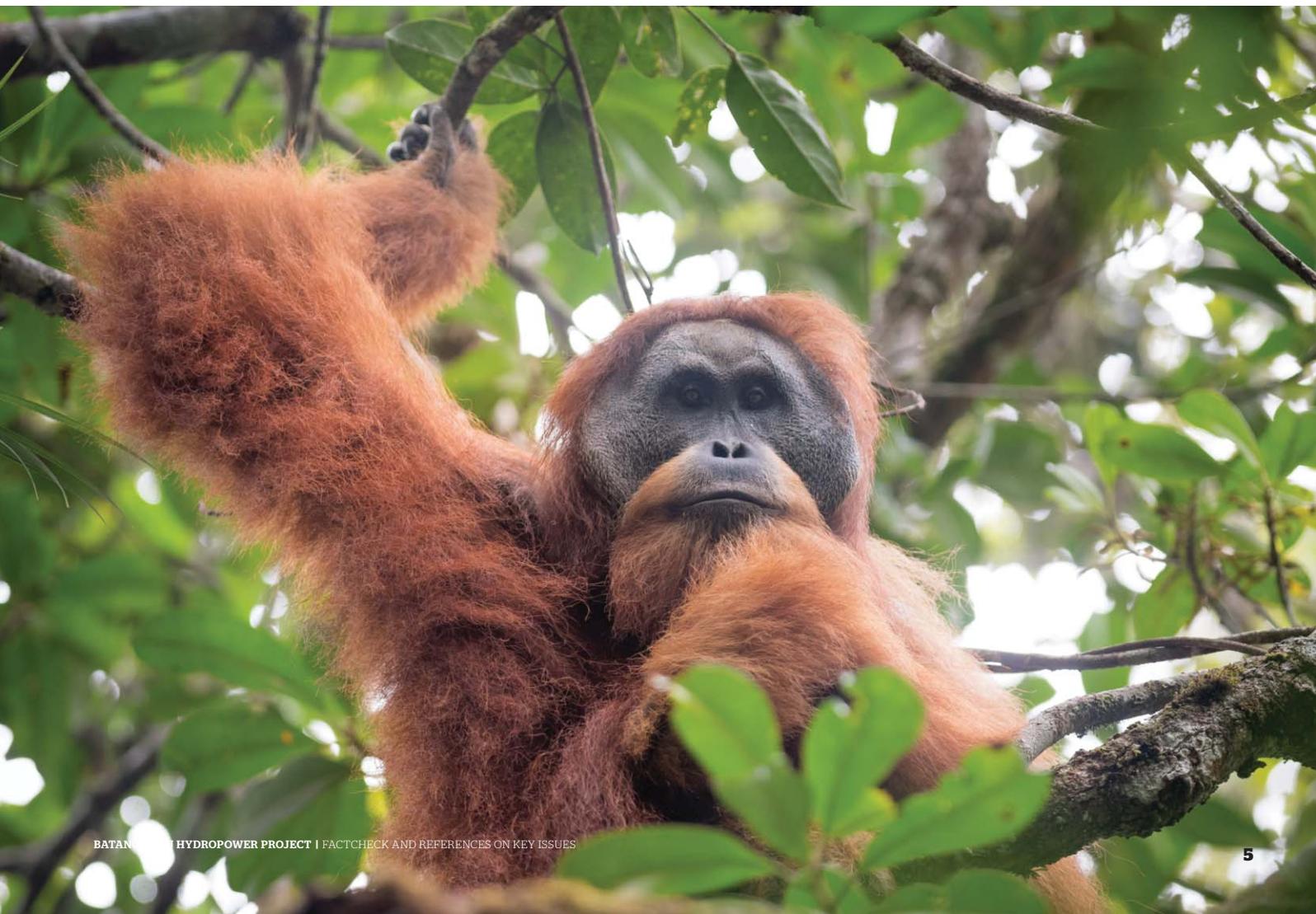
BACKGROUND ON THE TAPANULI ORANGUTAN

The Tapanuli orangutan was first described as a separate species in 2017 after genetic analysis revealed that its lineage diverged from the rest of the orangutans on Sumatra over 3 million years ago, and gene-flow between them ceased completely at least 10 thousand years ago.⁸

Later in 2017 the species was assessed as Critically Endangered for the IUCN Red List, which noted a decreasing population trend and severely fragmented population.⁹ The Tapanuli orangutan is found in three main populations, the two largest of which are probably not connected by forest cover (although it is possible that individual orangutans could still move between them). The Batang Toru hydropower project is situated at a key location for connectivity between these sub-populations (see "Overview: Tapanuli Orangutan Distribution and Population Dynamics").

In April 2019 a scientific letter was published in Conservation Science and Practice entitled "The Tapanuli orangutan: Status, threats, and steps for improved conservation" which warned that "the Tapanuli orangutan was the latest extant great ape to be discovered, but ... it might well be the first one to go extinct."¹⁰ The paper recommended (among other measures) that the Government of Indonesia "halt the hydroelectric dam development" and "establish a forest corridor between the west and east block".

In April 2019 the IUCN (International Union for the Conservation of Nature¹¹) called for "a moratorium on projects impacting the Critically Endangered Tapanuli orangutan".¹² In October of the same year the Section on Great Apes (SGA) of the IUCN Primate Specialist Group issued a statement proposing "a moratorium on development in the Tapanuli orangutan's range" saying that it was "particularly concerned by the threat of a hydroelectric project development in core orangutan habitat".¹³ This statement "calls for a complete halt to all encroachment and development" and "further proposes that its [the SGA's] Executive Committee leads an independent study to determine the implications for the Tapanuli orangutan of the various threats to orangutans ... and whether or not those threats can be mitigated." It explains that "The wide breadth of expertise in the IUCN SGA, which includes scientists from both range (e.g., Indonesia) and non-range state great ape countries, makes this group particularly well suited to lead such a study."



OVERVIEW:**Tapanuli Orangutan Distribution and Population Dynamics**

Evaluating the impact of the project on the Tapanuli orangutan requires an understanding of the species' current status. The map below, published in 2019 in *Conservation Science and Practice*¹⁴, shows all the known populations of *Pongo tapanuliensis*. Several points are particularly worth noting:

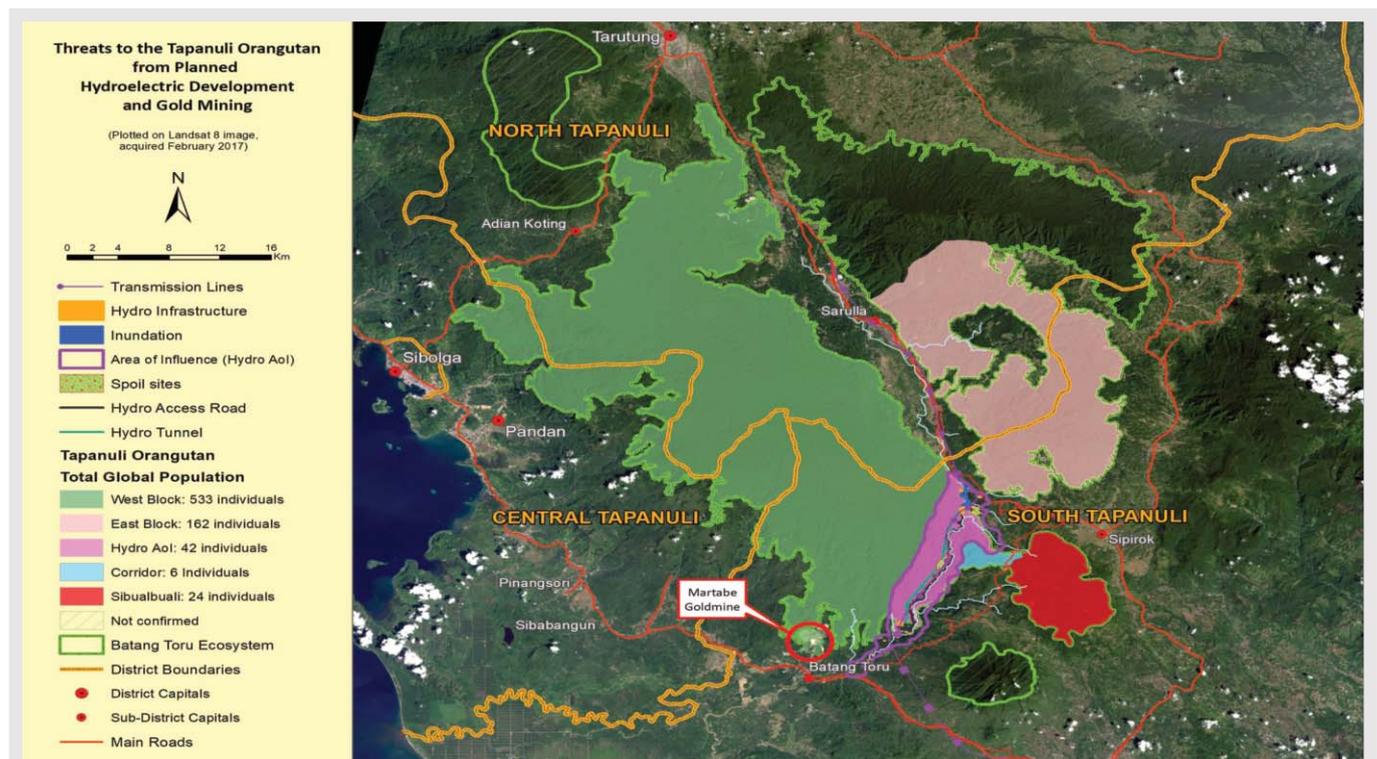
- The Hydro Aol (Area of Influence for the hydropower project) and Corridor are part of the West Block which extends to the South East over the Batang Toru river. The Aol contains some of the last tracts of primary lowland forest in the Batang Toru ecosystem.¹⁵ The hydropower project would establish an access road and power lines following the river along most of this section, involving cleared ground and hazards to orangutans.
- The most feasible connection point between the West Block and the East Block is at the North end of the Aol. Historical maps (see Metapopulation Connectivity section) suggest that there was forest connectivity here at least within the last hundred years and possibly much more recently. Genetic research would need to be conducted to

establish when or if movement of individuals between these populations stopped taking place. This is the location of the inundation area of the project, from which power transmission lines run North up the valley.

When considering land clearance impacts, it should be understood that orangutans are not restricted to primary forest areas but can inhabit many kinds of secondary forest, as well as travelling through a wide range of land cover types including commercial plantations (see Geographic Range section). Lack of tree cover, rather than lack of primary forest, is a significant limiting factor on their movement.¹⁶ However, they are very vulnerable to disturbance from human presence and often avoid forest areas that are close to human activities (see Behavioural Response section). It cannot be assumed that they would use or travel through patches of forest which are exposed to significant human presence.

Although the map shows five populations of Tapanuli orangutan these are usually considered as only three (East, West and Sibualbuali), whilst the latest Orangutan

Population and Habitat Viability Assessment (PHVA) conducted in 2016 divided these simply into an East and a West block, with the prospects for each population in isolation very concerning. The assessment rated the viability of the East Block as 'poor', with estimated time to extinction of 124 years, and the West Block as 'moderate to poor' with estimated time to extinction 310 years.¹⁷ The 2019 status review notes that, using criteria from the 2004 PHVA¹⁸, the East Block and any smaller blocks would be considered non-viable in isolation.¹⁹ Hence, if connectivity were permanently lost the only viable sub-population would be the West Block. However the authors explain that "given the current and projected threats of habitat degradation and loss, hunting, human-orangutan conflict, an expanding goldmine, and a neutralized logging concession in the area ... this is an extremely risky scenario ... because these threats could drive this population to nonviable status within as few as 1–2 generations." It is clear that connectivity between the two main blocks in particular, as well as smaller populations, will be a major factor in the long-term survival of the species.



GEOGRAPHIC RANGE

Concern: The total range of the Tapanuli orangutan has been misrepresented.

Claim:

"The Tapanuli Orangutan is endemic to the Batang Toru forest, with an estimated population of around 800 individuals. Their habitat is spread in the 163,000 Ha of the Batang Toru forest ecosystem"²⁰

Evidence:

- The total range of the Tapanuli orangutan is now estimated at only 1,023 km² (102,300 ha).²¹

Concern: Elevation limits of Tapanuli orangutan range have been misrepresented.

Claim:

"Tapanuli orangutan have adapted with the environment and live on highland (>600masl²²) with low temperatures. Therefore, it has very thick fur and longer than other orangutans. The highest point of Batang Toru Hydropower Plant project is at 430masl,"²³

Evidence:

- The 2017 paper describing the Tapanuli orangutan states that it is found at elevations from at least ~300masl.²⁴
- Surveys conducted in 2000/1 identified orangutan presence in low altitude coastal swamp areas near the Batang Toru ecosystem around Lumut.²⁵
- Historic records show that the species occurred in the second half of the 19th Century in the Batang Gadis lowlands

south of Batang Toru, approximately 25masl²⁶, and early in the 20th Century around the Tapanuli Bay which is at sea level.²⁷

- It has been documented that Sumatran orangutans²⁸ prefer lowland forest²⁹; where orangutans are found primarily at higher elevations this may indicate prevalence of hunting or loss of habitat at lower altitudes.³⁰

Concern: The possibility of orangutans using steep slope areas, such as those around the proposed inundation area, is misrepresented.

Claim:

"The flooded areas [by the reservoir] are the steep cliffs that were not inhabited and the area is not the habitat of Orangutans."³¹

Evidence:

- The original ANDAL document from 2014 shows at least two orangutan nests that were observed on steep slopes very close to the existing river and possibly within the inundation area.³²

- The presence of nests indicates the areas where orangutans have recently slept but not all the areas that they utilise or travel through. In other areas in Sumatra (eg Ketambe) orangutans are known to use forest areas on steep slopes.³³

Concern: The importance of primary forest is overemphasised compared to other habitat types.

Claim:

"the forested area inside the project site ... has been disturbed (not primary forest)"³⁴ / "... all of the project area are not primary forest ..." ³⁵ / "... vegetation inside the project area has been disturbed (not a primary forest anymore) ..." ³⁶ / "... the land is dominated by vegetation of pioneer species ... indicating that no primary forest exist but most likely secondary forest ..." ³⁷

Evidence:

- Primary forest is not the only habitat of orangutans, as acknowledged in the Addendum ESHIA - "The outcomes of the critical habitat determination indicate that the primary forest and secondary forest habitats within the Project area are critical habitat for the species [Sumatran orangutan³⁸] along with these habitat types across the Project area of influence and the wider landscape."³⁹

- Extensive orangutan use of habitats other than primary forest is well documented in scientific literature.^{40 41 42}

- See also the section on Area Affected by Project Activities for further points on this topic.

POPULATION DENSITY

Concern: Early studies reporting high orangutan densities are neglected in favour of recent NSHE-sponsored studies reporting low densities.

Claim:

"Survey of Kuswanda and Fitri (2017, 2018) indicates the density of nests around the project area is 0.41 per km²"⁴³ / "possible number of orangutan population density of 0.48 individuals/km² across 7,200 hectares in the Batang Toru Hydropower Plant"⁴⁴ / "The analysis of orangutans' nest density data by Santosa *et al.* (2018), obtained the estimated value of orangutan population density of 0.22 individuals/km² (95% CI: 0.17-0.27 individuals/km²) or equivalent to 1 individual/500 ha. Similar to this analysis Kuswanda and Noor (2018), reported that the population density in the project area is about 0,3 individuals/km². This proves that the project location is not the main habitat of Tapanuli Orangutans (*Pongo tapanuliensis*)."⁴⁵

Evidence:

- Surveys in 2015 for the Addendum ESHIA found substantially higher densities of orangutans than later surveys:
 - "A total of 213 Sumatran orangutan⁴⁶ nests were encountered within the Project Area of Influence with average density calculated as 0.7 individuals/km² for the west side of the Batang Toru River. The densities were recorded highest in the southern survey area at 0.95 individuals/km². These results are between 26%-57% times higher than other areas previously surveyed in the Batang Toru Forest."⁴⁷
 - "The baseline survey of the Project area of influence (West side of the river only) recorded orangutan average density to be 0.7 individuals/km². The analysis of baseline results identifies Sumatran orangutan⁴⁸ density estimates on the west side of the Batang Toru River, within the Project area of influence, to be higher than those average estimates for the larger Batang Toru Forest area."⁴⁹
- The existence of high densities of Tapanuli orangutan in this area is cited within the IUCN Red List assessment for the species. "... a hydro-electric development has been proposed in the area of highest orangutan density, which could impact roughly 100 km² of *P. tapanuliensis* habitat, or nearly 10% of the entire species population."⁵⁰
- Recent NSHE documents conspicuously omit the findings of these earlier surveys: "As indicated in the ESHIA study of the presence of orangutan in the project areas and its surrounding, the project carried out in depth studies to collect more detailed information about orangutan and other wildlife necessarily to arrange proper mitigation plan. The first study on orangutan and other wildlife population was conducted during the wet season in January to March 2017."⁵¹

Concern: Attempts to present new data as a 'baseline' neglect the significance of original baseline data.

Claim:

"to obtain up to date baseline data on endangered species, such as the orangutans, a detailed study was recently undertaken"⁵²

Evidence:

- As expressed by a group of leading orangutan conservation professionals: "Conducting research on orangutans while disturbances are taking place cannot generate baseline insights into the population dynamics of the three subpopulations of *Pongo tapanuliensis*, and therefore cannot be bases for determining mitigation or avoidance measures."⁵³

Concern: It is inaccurately stated that the project area is not core habitat for orangutans.

Claim:

“These two facts [i.e. the construction area and elevation of the hydropower project] provide confirmation that the project is not located on the main habitat or population source of orangutans.”⁵⁴ / “This fact [nest observations in Pusaka Kalam / NSHE 2018] also proves that the area for the Batang Toru Hydropower Plant is least used by orangutans, therefore cannot be categorized as main habitat.”⁵⁵

Evidence:

- The Addendum ESHIA repeatedly notes the significance of this area as orangutan habitat:
 - “Field surveys reported density estimates within the Project area of influence to be 26-57% higher than estimates from the Batang Toru Forest. As such it is considered likely that the Project area of influence may be associated with critical habitat for this species.”⁵⁶
 - “The outcomes of the critical habitat determination indicate that the primary forest and secondary forest habitats within the Project area are critical habitat for the species [Sumatran orangutan⁵⁷] along with these habitat types across the Project area of influence and the wider landscape.”⁵⁸
 - “Although the percentages of available habitat within the Batang Toru Forest area that will be lost appear small, baseline surveys identified that the Project Area of Influence supports a relatively higher density of individuals than other Batang Toru Forest areas assessed.”⁵⁹
- In the assessment of Impact on IFC PS6 Biodiversity Values given in the Addendum ESHIA, the impact on the Sumatran orangutan⁶⁰ is assessed as having ‘high’ sensitivity and ‘medium’ magnitude, resulting in a designation of ‘major’ significance.⁶¹
- The significance of this area for the survival of the species is highlighted by the IUCN SGA which says: “We are particularly concerned by the threat of a hydroelectric project development in core orangutan habitat that is currently unprotected.”⁶²

Concern: Ranging behaviour of orangutans is over-simplified with misleading effects.

Claim:

“The Batang Toru Hydropower Plant occupied land of 122 hectares, smaller than the minimum area needed for a single orangutan.”⁶³

Evidence:

- Orangutans often have abutting or overlapping ranges, needing access to the full extent of these areas, hence 122ha could potentially be essential habitat for a number of individual orangutans. One study in Borneo found that an average point in the survey area “is included in 3.36 home ranges of known adult females”⁶⁴ whilst a study on Sumatran orangutans found that a single 4 ha area was used by at least 40 individual orangutans.⁶⁵

METAPOPULATION CONNECTIVITY

Concern: It is inaccurately claimed that the Batang Toru river has been a barrier to orangutan movement for some time.

Claim:

“The Western and Eastern habitats have been naturally separated by the Batang Toru river for centuries ago.”⁶⁶ / “The river Batang Toru has been the main barrier for movement of Orangutan from eastern part to western part of the river.”⁶⁷

Evidence:

- In fact the separation of these blocks happened much more recently:

- US Army maps from 1943 (based on maps from 1908) and from 1954 show continuous forest cover on both sides of the river over the entire length of the current project site, strongly suggesting that there was extensive connectivity during this period.^{68 69}

- During surveys in 2003, researchers observed touching canopies providing connectivity over the river.⁷⁰

- Distribution maps⁷¹ show the West Block of Tapanuli orangutan habitat extending over a significant length of the Batang Toru river, indicating that the river does not represent a barrier for this population.

- Satellite images from 2013 in Google Earth (below) show many potential forest canopy connectivity points over the Batang Toru River in close proximity to project activities.



Concern: Surveys conducted after project activities began are used as evidence for the situation prior to project presence.

Claim:

"The river Batang Toru has been the main barrier for movement of Orangutan from eastern part to western part of the river. Project had conducted on the ground survey (15 km) along the river to find suspected tree canopy that might link both side of the river. The team found a single tree that most likely link both sides, however this tree won't be affected by the project."⁷²

Evidence:

- A 2015 report conducted for NSHE recorded extensive disturbance driven by the project presence even at that early stage, including human access to the West bank of the river from NHSE-constructed cable crossings, and land speculation within the project area in the form of vegetation clearance and demarcation using paint cans and machetes.⁷³ The NSHE statement above appears to be based on a ground survey conducted after this time and so cannot be taken as representative of the condition of canopy cover over the river before project activities commenced.

Concern: Emphasis on the area of land directly impacted ignores the significance of the project location for orangutan conservation.

Claim:

"... the Orangutan population is 800 individuals and living in the remaining habitat 150.000 hectares, in average each individual occupies 187.5 hectares. The size of permanent structure of the hydropower facilities would be 122 hectares it is only suitable for single Orangutan."⁷⁴ / ""Tapanuli Orangutan Habitat is scattered in the Batangtoru ecosystem with a total area of 165 thousand hectares. ... While the area of Batangtoru hydropower site is only 122 Ha or 0.07 percent of the Batangtoru ecosystem. Less than the roaming needs of an orangutan," said Barita Manullang, Biodiversity Expert PT. North Sumatra Hydro Energy."⁷⁵

Evidence:

- The 2015 PanEco/YEL report for NSHE notes that "The hydroelectric target lies in a key biodiversity area, not only in general due to its covering parts of the last remaining habitat for the genetically unique Critically Endangered orangutan population residing in the area, but because it is located in the key corridor areas providing the last hope for connectivity between the West Batang Toru forest block (84.000 ha) and the smaller Strict Nature Reserves Sibual-buali to the South East, and also the East Batang Toru forest block and the Strict Nature Reserve Dolok Sipirok to the East."⁷⁶
- This observation is also reported in the NSHE Addendum ESHIA: "... the area of influence is associated with a corridor that provides connectivity between the West Batang Toru forest block and Dolok Sipirok Strict Nature Reserve to the east and Sibual-buali Strict Nature Reserve to the south east (PanEco and YEL, 2015). PanEco and YEL (2015) note that the Strict Nature Reserves contain smaller orangutan populations whose long-term survival depends on maintaining connectivity with the larger, West Batang Toru block population."⁷⁷

- The significance of the connectivity function of this area is highlighted by the IUCN SGA: "This threatened core area is crucial for maintaining connectivity between the three forest blocks needed to ensure the species' survival ...".⁷⁸
- The importance of this area for connectivity for the Tapanuli orangutan is also recognised in the IUCN Red List assessment for this species: "... a hydroelectric development has been proposed in the area of highest orangutan density, which could ... jeopardize the chances of maintaining habitat corridors between the western and eastern *P. tapanuliensis* ranges, and with two smaller strict nature reserves, which could also maintain small populations of *P. tapanuliensis*."⁷⁹
- As expressed by one experienced orangutan field scientist, "The wall across Berlin didn't take up much space but it had a huge impact."⁸⁰

Concern: The effectiveness of 'arboreal bridges' is overstated.

Claim:

"Arboreal bridges for the animals will be built in case the road constructions fragment the orangutans from the river."⁸¹ / "Monitoring results on the function of the arboreal bridge, indicate that this facility is functioning properly, and has been used by wildlife to cross roads and rivers."⁸²

Evidence:

- The observation that cables have been used by wildlife does not necessarily mean that they have been or will be used by orangutans.

- The difficulty in ensuring that orangutans use human-constructed crossings is highlighted in an interview with experienced orangutan researcher Serge Wich: "In Ketambe, a research site in Aceh, Sumatra, where Wich has worked, a cable was placed over the river. It was very frequently used by macaques, Wich says. However, as far as he knows, in the thirty years that it was there, it was never used by orangutans. "To experiment with bridges for a species that's almost extinct seems completely ludicrous to me," Wich said."⁸³

- In the same article Wich explains that "In Sabah, they've used fire hoses over very narrow rivers and, after several years, orangutans sometimes use these. We know that there are differences between the orangutans on Sumatra and Borneo so to assume that orangutans on Sumatra would use similar bridges is dangerous."⁸⁴

BEHAVIOURAL RESPONSE OF ORANGUTANS TO PROJECT ACTIVITIES

Concern: Impacts of project activity on orangutan behaviour are misrepresented.

Claim:

"Other observations show that Tapanuli orangutans are not disturbed by the sound of heavy machinery working. Orangutans continue to conduct a calm behaviour around them while on the move, eating and resting."⁸⁵

Evidence:

- The Addendum ESHIA notes that "Studies undertaken as part of a neighbouring project impact assessment identified a negative correlation between drilling intensity and Sumatran orangutan⁸⁶ density, attributing 'temporary disappearance' to noise rather than physical habitat loss (Agincourt 2008)."⁸⁷

- The same document also states: "Sumatran orangutans⁸⁸ are typically reluctant to move through highly fragmented landscapes, even if existing corridors of primary high value forest persist."⁸⁹

DISCREDITING PREVIOUS SURVEY RESULTS

Concern: Criticisms of the PanEco/YEL 2015 orangutan survey are based on a misinterpretation of the original data.

Claim:

"Based on the results of the ground check on the 2015 orangutan nest distribution map, most locations that have been reported as nest finding points, are no longer used for nesting activities. Only 10.34% of the nests are classified as new nest ..."⁹⁰ / "Groundcheck results (Professor Yanto Santosa, 2018) on the map of the nests spread by YEL (2015) in the permitted location (7,200 hectares) showing that most locations earlier reported as gathering nests are no longer used for nesting activities. Only 10.34% of nests are classified as new nests (or A class nests) while largely are old nests (E class nests, 51.72%)."⁹¹

Evidence:

- This is not a valid interpretation of these results as orangutans build a new nest every night, hence this is a typical nest age distribution for a healthy population:
 - The Pusaka Kalam / NSHE report itself explains that "According to various studies (Rijksen, 1978; Sugardjito, 1986; van Schaik *et al.*, 1995; Djojoasmoro *et al.*, 2004), orangutans always build new nests, both for resting and sleeping at night."⁹²
 - Accepted surveys that report nest stage data show very similar patterns for healthy populations, eg van Schaik *et al.* (1995) also reports 10% new nests.⁹³

Concern: The PanEco/YEL 2015 study is discredited without adequate justification.

Claim:

"... most locations that have been reported as nest finding points, are no longer used for nesting activities ... most of the orangutans' nest findings in 2015, lie on steep cliffs that are relatively "very difficult" to reach ... Any mistakes/errors in the application of this method in the field will result in inaccurate data and cannot be used as a scientific "reference"."⁹⁴ / "most of nests in "YEL version" are located on steep cliffs very difficult to be reached by orangutans, especially if they used normal methods of orangutan nest survey ... It needs to be reminded that the confusion/mistake of the method on the field will result in inaccurate survey data and cannot be used as valid reference for science."⁹⁵

Evidence:

- Orangutans have been observed in forest areas over steep ground at other sites, for example in Ketambe, Sumatra.⁹⁶
- YEL are experienced professionals in orangutan survey methods (for instance conducting much of the survey work reported in Wich *et al* (2016))⁹⁷ and this unsubstantiated accusation gives no clear grounds to doubt their results.

AREA AFFECTED BY PROJECT ACTIVITIES

EXTENT OF AREA AFFECTED

Concern: Explanations of project impacts omit crucial indirect impacts.

Claim:

"Of the 669 hectares licensed for this project, 122 hectares will be used for permanent building structures, 100 hectares for support function, and the remaining 446 hectares will be replanted and restored."⁹⁸

Evidence:

- The anticipated facilitation of human access to, through and around the project site is also likely to have serious and wide ranging impacts on habitat, wildlife and the environment:

- The Addendum ESHIA observes that "With greater human activity in the region and increased access points to the forest there is a risk of increased hunting and poaching activities leading to fauna mortality. Hunting of wildlife, including conservation significant species was observed commonly throughout baseline surveys. Through the installation of new roads, i.e. increased ease of access hunting and poaching may increase."⁹⁹

- In the Assessment of Impact to Habitats in the Addendum ESHIA, the impact "Hunting and poaching" is assessed as having 'high' sensitivity and 'medium' magnitude, resulting in a designation of 'major' significance.¹⁰⁰ The 'residual impact' if all planned mitigation activities are implemented with complete success is still assessed as 'moderate'.¹⁰¹

- The impact of hunting on orangutan distribution and density in Batang Toru is already well documented in scientific literature.¹⁰²

PRIMARY FOREST IN PROJECT AREA

Concern: Two studies reporting significant areas of primary forest in the project area are discounted based on a more recent NSHE report.

Claim:

"... most of the lands that are allocated for the hydropower development activities are not primary forest cover ..."¹⁰³ / "Field ground check has been undertaken through three different studies, and all reports indicated that there is no primary forest in the project area."¹⁰⁴

Evidence:

- The biodiversity monitoring report submitted to NSHE in 2015 by PanEco and Yayasan Ekosistem Lestari (YEL) as part of the Addendum ESHIA (released in 2017) says that "The last primary lowland forest of the Batang Toru Ecosystem can now only be found in the NHSE target area, reflected in the highest densities of great apes found, and all other taxa studied" and notes that "people from various villages on the east side of the Batang Toru river have now taken to clearing forest that was previously inaccessible and in primary condition."¹⁰⁵

- The Addendum ESHIA refers to a further analysis conducted by Hatfield Indonesia in 2015¹⁰⁶ in order "to assist with compliance with the provisions of IFC PS6" which uses a definition of 'primary forest' taken from the FAO 2010 Forest Resources Assessment¹⁰⁷ and concludes that "The majority of the Project area is mapped as primary forest with approximately 268 ha followed by secondary forest with approximately 101 ha."¹⁰⁸

LAND DESIGNATIONS IN PROJECT AREA

Concern: The project area is inaccurately described as a 'non-forest area'.

Claim:

"The hydropower plant is located on the Batang Toru region in Sipirok and Marancar, within the area designated as 'land allocated for other purposes' and not in the forest area."¹⁰⁹ / "... the project area is located on non-forest Area (APL) ..." ¹¹⁰ / "The location of the Batangtoru hydropower development project is located on a non-forest area (APL) ..." ¹¹¹ / "... the project will require only 122 Ha that is located and classified as Other Usage Area (APL) by the Government of Indonesia, meaning that it is non forest area."¹¹²

Evidence:

- The land category APL stands for Areal Penggunaan Lain meaning 'land for other uses', and is a legal designation that does not indicate whether the land is forested or not.
- The Addendum ESHIA reports that "The majority of the Project area has been mapped as the land class "primary forest" ... followed by secondary forest."¹¹³
- The same document also notes that "An area of approximately 486 ha will be permanently cleared of vegetation (direct impact) as part of the Project footprint. Approximately 76% of this area comprises Natural Habitat which largely corresponds with the primary and secondary forest land class types."¹¹⁴
- In a 2018 article in Mongabay the Director General for Conservation at the Ministry of Environment and Forestry (Wiratno) is quoted as saying "Even though the area's status has been converted for use for other purposes, the forest cover is still intact"; the article goes on to report that "Dana [Prima Tarigan of WALHI] called on the government to change the status of the area to protect it. "That area should have protected status," he said."¹¹⁵
- In 2014 extensive areas of the Batang Toru ecosystem were re-designated from APL ('land for other uses') to Hutan Lindung ('protected forest'). However the area around this project (which was already in development) was excluded, despite being included in earlier proposals for Hutan Lindung status.¹¹⁶ The local government has been provided with evidence that this land meets the requirements for Hutan Lindung with over 75% of the area scoring above the threshold of 175 on the government scoring system.¹¹⁷

Concern: Pledges to reforest affected areas may be unrealistic.

Claim:

"... the remaining 446 hectares will be replanted and restored."¹¹⁸

Evidence:

- The NSHE literature acknowledges that although spoil heap areas (totalling 185ha) are intended for restoration this may not be realistic: "... spoil areas will consist of large are [sic] of unconsolidated material. The material is from underground and is potentially sterile to rehabilitation efforts and/or volatile to erosive processes."¹¹⁹

PROVINCIAL POWER REQUIREMENTS



OVERVIEW:

Future Power Demand / Supply in North Sumatra

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In order to understand the importance of building a hydropower plant at Batang Toru it is worth considering how the power that it would generate fits into the overall picture of supply and demand in North Sumatra over the next several years. Data from the 2019-2028 'Power Supply Business Plan' (Rencana Usaha Penyediaan Tenaga Listrik or RUPTL) of the Indonesian State Electricity Company PT Perusahaan Listrik Negara (PLN)¹²⁰, together with reported figures for 2018 (from an Okefinance news article¹²¹), can be used to produce valuable forecasts. These have been considered in depth in other reports such as "A Roadmap For Indonesia's Power Sector" (IESR / Monash 2019¹²²) and "Analysis of Electricity Demand in North Sumatra Province and the Planned Batang Toru Hydroelectric Power Plant's Impacts" (B2E2 2020¹²³).

The RUPTL predicts growth in power demand in Sumatra over the ten year period of 9.8% a year (giving a total

increase of 141% over 2018 figures by 2028, to a total of 4,420 MW). However, some experts consider this likely to be an overestimate, with IESR suggesting 7.2% as a more realistic figure (giving a total increase of 100% to 3,674 MW). By comparison, actual annual growth over the period 2012-2017 was 5.8%, while an article on CNN Indonesia in March 2020 reported that "Minister of Energy and Mineral Resources (ESDM) Arifin Tasrif said the current electricity supply follows the assumption of high electricity growth. "The assumption of electricity growth is 6.5 percent per year, but in reality the electricity consumption growth is only 4 percent ...".¹²⁴

The RUPTL also details all the power plants that are scheduled to be constructed or expanded over the period 2019-2028. If the plans for Batang Toru are removed, the remaining projects will produce over 5,600 MW of additional power, increasing the total supply by

266% over the ten years to 7,805 MW. Given that in 2018 installed capacity in North Sumatra exceeded demand by some 300 MW¹²⁵ this means that by 2028 total power supply is anticipated to exceed demand by 3,385 MW (43% of the total supply) even using the higher demand growth estimate from PLN, or by 4,131 MW (53% of total supply) using the more modest IESR estimate.¹²⁶

These calculations for power supply and demand in North Sumatra over the next decade (which do not include any hydropower production from Batang Toru) indicate that this project cannot be considered essential in meeting the province's future power needs. As the B2E2 report concludes: "There may have been a rationale for the Batang Toru hydroelectric dam when it was proposed in 2012, before the identification of the Tapanuli orangutan, and in a very different energy situation. But there's no need for it in 2020."¹²⁷

POWER DEMAND / SUPPLY

Concern: The ‘energy crisis’ that the project was intended to address no longer exists.

Claim:

“The 510 MW power plant will be operated 24 hours ... to overcome the electricity crisis in North Sumatra ...”¹²⁸

Evidence:

- In fact the situation has changed substantially over recent years, so that instead of a shortfall there is now a power surplus in the province. This was known and covered in the media before the end of 2018: “Electric energy infrastructure development in the Province of North Sumatra (North

Sumatra) is growing rapidly. The electricity crisis that once happened now has a surplus. ... Before the surplus occurred, in North Sumatra there was a shortage of electricity, even North Sumatra was said to have experienced an electricity crisis in 2014 to 2016.”¹²⁹

“FLOATING DIESEL GENERATOR”

Concern: Claims that the project will replace a floating diesel generator are misleading.

Claim:

“The Batang Toru hydro power plant will replace a floating diesel-based generator that supplies 500 megawatts of electricity to North Sumatra.”¹³⁰

Evidence:

- The floating power station is actually powered by natural gas.¹³¹

OVERVIEW: Greenhouse Gas Emission Benefits

The savings in Greenhouse Gas (GHG) emissions allegedly achieved by the hydropower project have been widely circulated^{132 133} but a closer examination reveals some flaws in the calculations and the logic behind these arguments.

The key calculation of 1.6 Mt CO₂e¹³⁴ per year, taken from the 2017 Addendum ESHIA, is based on the assumption that the power used will directly replace alternative electricity generation producing GHG emissions at the national average rate. However, it is very unlikely that energy from alternative sources supplied in North Sumatra would generate emissions at such a high level (see CO₂ Emissions section). A large proportion of the power generation in the province is from natural gas, which produces significantly lower emissions, with hydropower and geothermal reducing the average further still. If this hydropower project were to replace the equivalent power produced by a traditional gas turbine (such as the existing offshore power plant) it would be saving more like 1.1 Mt CO₂e. If it were replacing power from the planned Sumbagut 1/3/4 'combined cycle' gas power plant the figure would drop to around 0.9 Mt CO₂e.¹³⁵

Following on from the predictions of future power demand and supply in North Sumatra (see "Overview: Future

Power Demand / Supply in North Sumatra") it is useful to consider the 2019–2028 plans for renewable energy production based on the RUPTL.¹³⁶ These plans would see an additional 2,177 MW produced from hydropower (excluding Batang Toru) and 670 MW from geothermal (including expansion of the existing plant at Sarulla by 300 MW and a new plant at Sorik Marapi set to generate 240 MW by 2023). Using the (higher) PLN figure of 9.2% annual growth, power demand in 2028 will be some 2,587 MW greater than in 2018, whilst at 7.2% growth it would increase by 1,841 MW. Under current plans, a total of 2,847 MW is set to be produced by that time from new hydro and geothermal plants alone. It therefore seems that even a generously estimated additional power demand over this period can be met by low emissions sources already planned or under construction, without any contribution from Batang Toru.¹³⁷

Another important concern over carbon accounting for hydropower projects is that whilst emissions are calculated over a notional timespan for the whole project, most of the emissions take place early in the process as a result of vegetation decay and other project construction effects.¹³⁸ This contrasts with fossil fuel generation, where emissions largely take place as the power is

produced, spread evenly over the lifetime of the project. In the context of a global climate crisis which needs to be addressed in a matter of years rather than decades, a project that releases a disproportionate amount of GHGs in the short term represents a greater threat to global efforts to urgently reduce GHGs than the calculated figures suggest. To put it another way: "A hydroelectric dam emits large amounts of greenhouse gases in the first few years after it is built, which creates a global warming "debt" that is slowly paid off as electricity generated by the dam displaces fossil fuels in the succeeding years".¹³⁹

If emissions reductions are to be prioritised, there are also many other options for increasing renewable power production in Indonesia, in particular from solar and wind generators. The IESR report explains: "[The Indonesian government] stipulates that by 2025, renewable energy shall make up 23% of primary energy mix, up from 8% today. Policy focus is on hydro and geothermal resources, while solar and wind power play only a negligible role. Globally, the trend is very different ... Solar and wind – driven by significant technology cost reduction – have been at the forefront of power sector investment for years and will continue to play the decisive role in modernizing and decarbonizing power systems globally."¹⁴⁰

CO₂ EMISSIONS REDUCTIONS CALCULATIONS

Concern: Quoted CO₂ emissions figures are questionable.

Claim:

"Batang Toru Hydropower Plant is part of Indonesia's plan to implement the commitment to reduce greenhouse gas (GHG) emissions. When in operation, the reduction can reach 1.6-2.2 million metric tons CO₂ ..." ¹⁴¹ / "The project will contribute to carbon emission reduction at 1.6-2.2 Mton per year." ¹⁴²

Evidence:

- The only clear calculations found in NSHE literature are for savings of 1.6 Mt (in fact 1,595,482 t CO₂e) per year ¹⁴³:
 - This is also the figure reached by calculations laid out in a detailed press article in Investor Daily. ¹⁴⁴
 - There is no identified source for an estimate of 2.2 Mt CO₂e per year.
- The 1.6 Mt per annum calculation in the Addendum ESHIA is based on the unlikely assumption that power from the project will directly displace power produced elsewhere which would generate emissions at the national average level ¹⁴⁵:
 - The national average emission rate (0.7568 tCO₂/MWh) is significantly higher than that for the existing offshore gas power plant which is seen as the main power supply alternative at present (0.5094 tCO₂/MWh), and hence is not a realistic basis for calculating emissions reductions. The planned gas power plant Symbagut 1/3/4, which will have a capacity of 800MW and is anticipated to be the primary future power supply alternative, will use a combined cycle system which has even lower emissions (0.3369 tCO₂/MWh) ¹⁴⁶
 - An alternative calculation suggests realistic figures, if replacing existing or planned gas-powered generators, of 1.1 Mt or 0.9 Mt CO₂ saving annually. ¹⁴⁷

Concern: Expressions of CO₂ emissions savings in terms of trees are problematic.

Claim:

"The presence of a clean energy plant with a capacity of 510 MW will contribute to reducing carbon emissions by around 1.6 million tons of CO₂ per year, or the equivalent of 12.3 million trees. "This project is part of a national effort to reduce carbon emissions. If a hydropower plant is terminated it's the same as cutting 12 million trees" Firman said." ¹⁴⁸ (quote attributed to Firman Taufick, Communications and External Director of NSHE) / "The presence of a clean energy plant with a capacity of 510 MW will contribute to reducing carbon emissions by 1.6 million tons / year or equivalent to the ability of 12.3 million Saga trees to absorb carbon emissions" ¹⁴⁹

Evidence:

- The Saga tree (*Adenanthera pavoniana*) is estimated to absorb up to 221.18 kg CO₂ per year. ¹⁵⁰ If the project were to save 2.2 million tonnes of CO₂ per year (an amount for which no justification has been identified) this would be equivalent to only 9.9 million saga trees per year. The saving given in the NSHE Addendum ESHIA of 1.6 million tonnes per year would be equivalent to 7.2 million trees. The proposed higher end alternative calculation given by B2E2 of saving 1.1 million tonnes would be equivalent to only 5 million trees.
- One media article claims that the CO₂ savings are "the equivalent of 123 million trees" but this is presumed to be a typographical error. ¹⁵¹
- It is not accurate to say that if the project leads to carbon savings equivalent to the sequestration performed by a certain number of trees, then not approving the project is equivalent to chopping down that number of trees. It could perhaps be compared to not planting that number of trees. However, chopping down trees can have GHG impacts far beyond the lack of sequestration, such as the release of carbon stores within the timber, soil or wider ecosystem, as well as broader ecological impacts.

ENVIRONMENTAL IMPACT OF RUN OF RIVER HYDROPOWER SYSTEMS

Concern: Calling the run-of-river hydropower system ‘environmentally friendly’ overlooks many negative impacts.

Claim:

“This hydropower plant will implement environmentally friendly technology known as “Run off River Hydroelectricity”¹⁵² / “... the “environmentally friendly” technology of “Run off River Hydropower”¹⁵³

Evidence:

- As identified in the Addendum ESHIA, the project will create a barrier to biotic movement up and down the river which will have significant environmental impacts:

- “There will be a decrease in longitudinal and latitudinal connectivity within the bypass reach of the Project area which will negatively impact most fish species, in particular migrators.”¹⁵⁴

- “The dams will result in restriction of fish migration in the aquatic environment, as well as alteration and fragmentation of habitats. The outcome is an impact to species distribution. ... A number of species encountered during baseline surveys are known to swim upstream to spawn with juvenile fish moving downstream for maturing before migrating upstream again as adults for spawning. This restriction has potential to impact species distribution in the catchment, availability of access to spawning grounds, reduced habitat area and isolation of populations. The barrier will be a permanent impact.”¹⁵⁵

- In the Assessment of Impact to Habitats in the Addendum ESHIA, the impact “Barrier to aquatic fauna movement and habitat fragmentation” is assessed as having ‘medium’ sensitivity and ‘medium/high’ magnitude, resulting in a designation of ‘major’ significance.¹⁵⁶ The residual impact even if all planned mitigation activities are implemented successfully is still ‘moderate’.¹⁵⁷

- In the Assessment of Positive and Negative Impacts of Changes in Flows to CH [Critical Habitat] Fish Species/Groups, in the Addendum ESHIA, the impacts on both “Endemic and restricted range fish species” and “Migratory fish species” are assessed as having ‘high’ sensitivity and ‘medium’ magnitude, resulting in a designation of ‘major’ significance.¹⁵⁸

- The ‘bypass reach’ of the river, where the water flow is diverted from the river into the tunnel that serves the power house, will experience substantial environmental disturbance. The Addendum ESHIA notes:

- “Decreases in longitudinal connectivity in [sic] one of the most significant impacts of the project in the bypass reach, and will negatively affect most fish species in the bypass reach.”¹⁵⁹

- “Most of the sensitive species, including indicator species and endemic species as identified will experience net neutral or net negative effects in the bypass reach.”¹⁶⁰

- A 2015 paper on the impacts of run-of-river systems lists significant impacts of a range of projects and notes that “The diversion of flow ... can alter the physical habitat, with consequences for organisms and ecosystem functions ... and habitat connectivity” and that “Most high-head schemes require the construction of a new in-channel barrier ... [which] has two major impacts on a river ecosystem: (1) it disrupts longitudinal connectivity, fragmenting the river; (2) it alters the in-channel environment and thus physical habitat.”¹⁶¹

Concern: Claims of minimal impact on river flow are misleading.

Claim:

"The hydropower plant employs the run-of-river hydro model that does not require dams and hence the impact on river flow is in the vein of the normal conditions."¹⁶²

Evidence:

• The Addendum ESHIA acknowledges that changes to flow are expected to occur and may have significant impact: "The Project would also affect flows downstream of the powerhouse. In this reach, flows will fluctuate when the Power House ramps flows up and down from a single turbine to four turbines. In particular, the change from minimum to maximum flows can occur in a very short time period, and a flow change will occur twice a day. The anticipated effect of these rapidly changing flow regimes is an increase or decrease in water depth and lateral extent of the Batang Toru River, which manifests as a flood or recession wave. ... Habitat changes in the reach downstream of Power House are predominantly related to down-ramping and include potential fish stranding ..."¹⁶³

• The same report also notes that the 'bypass reach' of the river will experience substantial change in flow rates: "The Project will create a "bypass reach" of the Batang Toru River between the dam and the powerhouse of around 14km in length. This bypass reach will be dewatered because the water will be diverted from upstream of the dam directly to the Powerhouse. The Project will alter flow patterns in the bypass reach as it will provide a minimum flow of 2.5m³/s to the bypass reach, which will be much lower than natural flows. The flow will also be constant without natural fluctuation."¹⁶⁴

FACTCHECKS EARTHQUAKE RISK

ASSESSMENT OF RISK LEVEL

Concern: The risk of high magnitude earthquakes may have been underestimated.

Claim:

"... site investigation reveals that the closest active fault was Toru 1B which have a distance 4,02 km, and the maximum potential magnitude of earthquake was Mw 6,7."¹⁶⁵

Evidence:

- The Sumatran fault has a history of earthquakes above magnitude 6.7:
 - There have been 15 large earthquakes (magnitude >7) on or near to Sumatra since 2000.¹⁶⁶
 - The nearby Tapanuli Earthquake of 1892 is estimated to have been magnitude 7.5 or greater.^{167 168}
- There is potentially a high risk of a large earthquake occurring in this area due to a 'seismic gap' – a stretch of the faultline that has not slipped for a considerable time and is therefore at greater risk of doing so. "Possible seismic gaps for

M \geq 7.0 earthquakes along the Sumatran fault are the northern half of the Sunda segment, and the Semangko, Dikit, Sianok, Barumon, Toru, Renun, Aceh, and Seulimeum segments."¹⁶⁹

- It should be noted that the earthquake magnitude value is a logarithmic scale and hence small differences in magnitude represent much larger differences in actual size and energy released. For instance, an earthquake of magnitude 7 is nearly twice the size of a magnitude 6.7 event and releases 2.8 times the energy, whilst one of magnitude 7.5 is more than six times larger releasing over 15 times as much energy.¹⁷⁰

INTERNATIONAL FINANCE CORPORATION STANDARDS

Concern: The project has not met the requirements of the International Finance Corporation Performance Standard 6.

Claim:

"... Batang Toru Hydropower Plant adopts the IFC standards, including standard number 6 on Biodiversity Conservation and Management of Living Natural Resources."¹⁷¹

Evidence:

- The IFC Guidance Note 6 (relating to Performance Standard 6) says "Where great apes may potentially occur, the IUCN/Species Survival Commission (SSC) Primate Specialist Group (PSG) Section on Great Apes (SGA) must be consulted as early as possible."¹⁷² However as of October 2019 – more than five years after the production of the original ANDAL¹⁷³ – the SGA had no record of being contacted by or on behalf of this project.¹⁷⁴ (According to SGA sources this is still the case as of March 2020.¹⁷⁵)
- The IFC standards also require that no project activities take place until it has been demonstrated that it will not lead to any reduction in the population of a Critically Endangered species. However, project activities have been undertaken without a satisfactory demonstration that this is the case, and significant impacts on the Tapanuli orangutan population have already been reported:

- IFC PS6 states "In areas of critical habitat, the client will not implement any project activities unless all of the following are demonstrated: ... The project does not lead to a net reduction in the global and/or national/regional population of any Critically Endangered or Endangered species over a reasonable period of time ..."¹⁷⁶

- The Addendum ESHIA confirms that the project area includes critical habitat for the species:

"In addition to density estimates, IFC PS6 notes specialist consideration for great apes given their anthropological and evolutionary significance. The outcomes of the critical habitat determination indicate that the primary forest and secondary forest habitats within the Project area are critical habitat for the species."¹⁷⁷

"The baseline biodiversity study documented in this report identifies: ... Project area contribution to corridor and connectivity values between the West Batang Toru forest block and Dolok Sipirok Strict Nature Reserve to the east and Sibual-buali Strict Nature Reserve to the south east – which would be considered critical habitat for Criterion 5 [of IFC Performance Standard 6, namely 'Key Evolutionary Processes']."¹⁷⁸

- However, the impact of the project on the orangutan population has been acknowledged by local authorities:

"They [orangutans] escaped to locals' plantations," Wiratno, the ministry's director general for conservation, told Mongabay in Jakarta. "So it's already proven that the project has already dealt an impact. While there's no casualty yet, it's an indication that the project must have had an impact."¹⁷⁹

EFFORTS TO MINIMISE IMPACT

Concern: Several project decisions are inconsistent with prioritising environmental and conservation concerns.

Claim:

“As part of the Batang Toru ecosystem, Batang Toru Hydropower Plant manages the project with high commitment on conservation and ecosystem biodiversity.”¹⁸⁰

Evidence:

- Several issues concerning the planning and execution of the project to date call into question the level of commitment to environmental protection. These include points relating to:

- The project development process:

The initial impact assessment process was undertaken without any collaboration with biodiversity conservation organisations that had already been active in the area for several years, or with the IUCN SGA.

The risk of primates and other wildlife being electrocuted on power lines, which has been documented in other locations^{181 182}, does not seem to have been considered in the Addendum ESHIA, and no mitigation measures are proposed.

- Project planning decisions:

Spoil heaps have been located inside the Batang Toru ecosystem, and in some cases in forested areas¹⁸³ rather than moving spoil to a less sensitive location.

The current Northern route for the transmission line (as proposed by PLN) has been adopted by NSHE despite being more environmentally damaging than alternatives such as the previously suggested South Easterly route.¹⁸⁴

The extensive tunnel length (14 km) presents a barrier to movement of orangutans over a very significant connection zone – a shorter tunnel would have allowed more opportunities to retain connectivity between orangutan sub-populations.

The positioning of the tunnel, access road and power lines on the West bank of the river compromises this large forest block and poses a greater threat to the largest Tapanuli orangutan sub-population and its connectivity with the Eastern block than siting the tunnel on the East bank.

Application of the ‘precautionary principle’ would dictate that lack of gene flow between populations should be proven by genetic studies before conducting activities that could prevent connectivity between populations.

CONCLUSION

This review has found multiple cases of statements made in public-facing NSHE documents that conflict with findings in NSHE's own impact assessment reports and with current scientific knowledge.

These include several assertions about the use of the project area by the Tapanuli orangutan as well as wider environmental impacts on orangutans, forest areas and aquatic habitats. Claims about demand for the energy produced by the power plant and the greenhouse gas emissions benefits are also found to be questionable. In addition to this, the requirements of the International Finance Corporation's Performance Standard 6 have not been

met, and engagement with the IUCN Section on Great Apes and a robust study into the impacts of the project on the Tapanuli orangutan are urgently required. This review therefore supports the position of the IUCN SGA that the project should announce an immediate halt to all project activities on the ground while a full investigation of the impacts on the orangutan population is carried out.

SGA STATEMENT ON THE TAPANULI ORANGUTAN



IUCN SSC Primate Specialist Group's Section on Great Apes calls for a moratorium on development in the Tapanuli orangutan's range.

The IUCN SSC Primate Specialist Group's Section on Great Apes (SGA) is deeply concerned about existing and emerging threats to the Critically Endangered Tapanuli orangutan (*Pongo tapanuliensis*) in Sumatra, Indonesia. We are particularly concerned by the threat of a hydroelectric project development in core orangutan habitat that is currently unprotected.

This threatened core area is crucial for maintaining connectivity between the three forest blocks needed to ensure the species' survival, but is designated as APL (Areal Penggunaan Lain: lit. land for other uses). Our concern regarding the fate of this core area and the orangutans is in line with a statement from the Director General of Nature Resources and Ecosystem Conservation, Mr. Wiratno, who said recently that "...as the authorized ministry, we guarantee that Sumatran, Tapanuli and Bornean orangutans will not go extinct. One of the elements underlying this guarantee is that core parts of their habitats are covered in the permanent primary forest and peatland moratorium map."

In line with this statement, the IUCN SGA calls for a complete halt to all encroachment and development in this APL area. International guidelines published by the International Finance Corporation and for all the Equator Banks now require the following under Performance Standard 6 Guidance Note 6: *"Special consideration should be given to great apes (gorillas, orangutans, chimpanzees and bonobos) due to their anthropological significance. Where great apes may potentially occur, the IUCN/Species Survival Commission (SSC) Primate Specialist Group (PSG) Section on Great Apes (SGA) must be consulted as early as possible to assist in the determination of the occurrence of great apes in the project's area of influence. Any area where there are great apes is likely to be treated as critical habitat. Projects in such areas will be acceptable only in exceptional circumstances, and individuals from the IUCN/SSC PSG SGA must be involved in the development of any mitigation strategy."*

The IUCN SGA further proposes that its Executive Committee leads an independent study into the various threats to orangutans occurring in the APL area, and whether they can be mitigated. The wide breadth of expertise

in the IUCN SGA, which includes scientists from both range and non-range state countries, makes this group particularly well suited to lead such a study. The IUCN SGA therefore urges the Indonesian Government to engage in a dialogue to initiate such a study. Further activities in the APL area should only be considered once the results of the study have been fully reviewed.

The IUCN SGA also appeals to the North Sumatra Hydro Energy company (PT NSHE), which is developing the hydroelectric project in Batang Toru, to immediately halt this development to enable the careful assessment of the impacts of the project. It is necessary to suspend this development because the study may recommend changes to the project design that would reduce negative impacts on the orangutans, or may even suggest a relocation of the energy plant to another site or to a different energy source if the impacts cannot be mitigated.

The Tapanuli orangutan is the first new great ape species to be described since the 1920s. Wholly confined to the Batang Toru Ecosystem with an estimated population of fewer than 800 individuals, it is listed as Critically Endangered on the IUCN Red List of Threatened Species. It has the lowest number of individuals of any great ape species, and consequently any further loss of habitat, disturbance or killing of orangutans could drive the species to extinction.

The IUCN SGA stands ready to support Indonesia's government agencies, NGOs and financial institutions committed to preventing the extinction of the Tapanuli orangutan.

October 5, 2019
(abridged version 27th April, 2020)

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