

Suriname's Bakhuis Bauxite Mine:

An Independent Review of SRK's Impact Assessment



VIDS

Vereniging van Inheemse Dorpshoofden in Suriname

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Contents

PREFACE: <i>Ricardo MacIntosh, Nado Aroepa, David Carlo Lewis</i>	4
SURINAME’S BAKHUIS BAUXITE PROJECT: KEY EVENTS	5
CHAPTER 1: SRK’S IMPACT ASSESSMENT: AN OVERVIEW	
<i>Robert Goodland</i>	9
1.0 Objectives of this Review.....	10
2.0 Checks and Balances to Promote Frank ESIA’s	12
3.0 Was the “Scoping” Stage Omitted?	14
4.0 Has Best Practice Been Followed?	16
5.0 Conclusion.....	21
6.0 References	23
CHAPTER 2: COMMENTS ON THE BAKHUIS DRAFT ENVIRONMENTAL AND SOCIAL IMPACT REPORT	
<i>Stuart Kirsch</i>	26
1.0 Preface	27
2.0 Land Rights and Free Prior Informed Consent	29
3.0 Alternative Forms of Development	31
4.0 Terrestrial Impacts	31
5.0 Watershed Impacts	35
6.0 Best-Case Versus Alternative Scenarios	37
7.0 Other Impacts	40
8.0 Indigenous Responses to Potential Environmental Impacts	42
9.0 Development Matters	44
10.0 Other Affected Populations	47
11.0 Mitigation Measures	48
12.0 Compensation	50
13.0 Freedom and Development	51
14.0 Conclusion	53
15.0 References	57
CHAPTER 3: COMMENTS ON ENVIRONMENTAL ASPECTS OF THE BAKHUIS ENVIRONMENTAL AND SOCIAL IMPACT REPORT	
<i>Ann Maest, PhD</i>	61
1.0 Introduction	
2.0 Mining Operation and Sources of Impact to the Environment	62
3.0 Environmental Baseline	65
4.0 Environmental Impact	71
5.0 Alternatives Analysis	85

6.0 Conclusions and Recommendations85
7.0 References90

CHAPTER 4: REVIEW OF THE BAKHUIS ESIA AND ASSOCIATED DOCUMENTS

David Hunter.....93
Introduction94
1.0 Indigenous Rights and Community Support94
2.0 Monitoring99
3.0 The ESIA’s and Associated Documents101

CHAPTER 5: EVALUATION OF THE ENVIRONMENT AND SOCIAL IMPACT REPORT FOR THE PROPOSED BAKHUIS BAUXITE PROJECT

Mark Chernaik and Maya Leonard-Cahn103

CHAPTER 6: MISSING PIECES: AN ANALYSIS OF THE DRAFT ENVIRONMENTAL AND SOCIAL IMPACT REPORTS FOR THE BAKHUIS BAUXITE PROJECT

Viviane Weitzner.....115
1.0 Introduction116
2.0 Indigenous Rights119
3.0 Substance and Process of the ESIA’s128
4.0 Draft Mining Plans Related to the Proposed Bakhuis Bauxite Mine141
5.0 Conclusion: Consolidating the Missing Pieces151
6.0 References153

ANNEX 1: The draft Consultation Protocol of the Indigenous Peoples of West Suriname157

SRK’s Sue Reuter presents to the Indigenous Peoples of West Suriname the Draft ESIR during the last held Bakhuis Forum meeting on May 21, 2008.



Acronyms and Abbreviations

BHPB:	Broken Hill Proprietary & Billiton Corporation
BMS:	NV BHP Billiton Maatschappij Suriname
CBD:	Convention on Biological Diversity
CEP:	Community Engagement Plan: West Suriname Communities
CERD:	UN Committee on the Elimination of Racial Discrimination
CCRP:	Conceptual Closure and Rehabilitation Plan
CSNR:	Central Suriname Nature Reserve
CSR:	Corporate Social Responsibility
EIA:	Environmental Impact Assessment
EIS:	Environmental Impact Statement
EMP:	Environmental Management Plan (part of ESIA)
EMMP:	Environmental Management and Monitoring Plan Framework for Construction and Operations Phases
ESIA:	Environmental and Social Impact Assessment
ESIR:	Environmental and Social Impact Report
FPIC:	Free Prior Informed Consent
HSEC:	Health, Safety, Environment and Community (BHP Billiton Management Standards)
IACHR:	Inter-American Court on Human Rights
IAIA:	International Association of Impact Assessment
IBA:	Impact Benefit Agreement (=ICC)
IUCN:	International Union for the Conservation of Nature
ICC:	Impact Compensation Contract (=IBA)
ICMM:	International Council on Mining & Metals
IDB:	Inter-American Development Bank
IDRC:	International Development Research Centre
IFC:	International Finance Corporation
ILO:	UN International Labor Organization
Km:	Kilometres
Mine ESIR:	The Environmental and Social Impact Assessment of Mining Aspects of the Proposed Bakhuis Bauxite Project: Draft Environmental and Social Impact Report, Volume 1
MoU:	Memorandum of Understanding
MRN:	Mineração Rio do Norte
MW:	Megawatt
NGOs:	Non-governmental organizations
NIMOS:	Het Nationaal Instituut voor Milieu en Ontwikkeling in Suriname (National Institute Environment and Development in Suriname)
NSI:	The North-South Institute, Canada
PCDP:	Public Consultation and Disclosure Plan
SIA:	Social Impact Assessment
SRK:	SRK Consulting
STDs:	Sexually Transmitted Diseases
Suralco:	Suriname Aluminum Company LLC
VIDS:	Vereniging van Inheemse Dorpshoofden in Suriname (Association of Indigenous Village Leaders in Suriname)

Preface by

Ricardo Romeo MacIntosh, Chief of Washabo, Nado Theofilus Aroepa, Chief of Section, and David Carlo Lewis, Chief of Apoera

The first time companies showed interest in the bauxite deposits in West Suriname, was in the 1970s. They started an exploration program and our government designed the 'West Suriname Plan' in which an integrated aluminum industry would have spin-offs to the agro-business and other industries. This Plan envisioned our village, Apoera, as the third city in Suriname, after Paramaribo and Nickerie. On our land agricultural plots made way for roads and modern houses, a railroad was constructed with a port on our riverside. No ESIA was done at that time. All decisions were taken without our participation. As small boys we saw everything and we hoped that our lives would change for the better. But we suffered a lot of impacts during that period. Now that we are the leaders of our villages, we want to make sure that history will not repeat itself and that our rights as Indigenous Peoples are respected to the benefit of our people.

So this time, when we saw the bauxite companies restarting activities at Bakhuis with an exploration project, we immediately asked for assistance. We requested our participation in the whole process, and we insisted that an ESIA would be undertaken, also with our participation. But the ESIA was done by scientists and written in a technical language we don't understand. That is why we wanted this review, to know whether the ESIA was done in the right way, if our rights are respected, and more importantly, to understand fully what the possible impacts will be for our people and our land. With this review we also want to make a statement to the government, that they have to take us into account and that we have to participate in the whole process.

We have learned a lot, especially about our participation. Before 2003, we did not know anything about BMS' plans; we had no information at all. Through exchange with other affected Indigenous Peoples from Canada we came to know and understand more about our international rights as Indigenous Peoples. We went to an international meeting in Indonesia focusing on the right to Free, Prior and Informed Consent. We are strengthened by this knowledge. We have seen that professionals are executing the ESIA studies, but if you yourself don't have experts in the house, they can tell you anything. It is important that we have experts in our communities, so we have to make sure that our children go to school and receive the education they need.

We have learned also through the experience of other countries, like Canada, Brazil and Colombia. And we are thankful to all individuals and organizations that helped us these past few years in strengthening us and enlarging our knowledge, such as FPP, Robert Goodland and Viviane Weitzner. We are also grateful for and appreciate all the work done by the VIDS office. Without their help we would never have been able to seek the assistance of the experts who did this review. In this light we want to say a special thanks to IDRC for giving us the financial back-up for all of this. Our gratitude also goes to each member of the review team and to other specialists who spent their time and efforts without payment in order to support our cause. (As told and recorded by VIDS' Carla Madsian in August 2009; lightly formatted).

SURINAME'S BAKHUIS BAUXITE PROJECT: KEY EVENTS

Compiled by Carla Madsian, VIDS with the help of the three Indigenous Chiefs of West Suriname: Carlo Lewis, Ricardo MacIntosh, and Nado Aroepa

2001 February: Two BHPB managers and the district commissioner inform the chiefs of West Suriname that BMS and Suralco have applied for an exploration permit in the Bakhuis mountain range. This is the first time the communities had heard of the Bakhuis bauxite project.

2003 January: GoS sign two MoUs, the first with Pittsburgh-based Alcoa, to conduct feasibility studies for an aluminium smelter and a hydroelectric dam in the Kabalebo River that would supply energy for the smelter. The second MoU, signed jointly with Alcoa and Australia's BHP Billiton, was to explore bauxite deposits at Bakhuis and plan refinery operations.

2003: The start of the Bakhuis Mining ESIA by South Africa's SRK Company. The scoping report was not made public. Not clear at what date the Mining ESIA started.

2003 July: The bauxite companies receive the exploration permit from the GoS.

2003 August 8: The second visit of BMS managers to the Indigenous communities of West Suriname, accompanied by contractors for the registration of village workers. This visit was unannounced and the chief of Apoera refused to receive the delegation. He insisted they come back accompanied by GoS.

2003 September: BMS general manager, the Minister of Natural Resources, and the District Commissioner visit the Indigenous Peoples and officially inform them of the bauxite exploration project.

2003 November: Official start of exploration: the first drill hole.

2004 July 11: The chiefs of Apoera and Section receive an update of the Bakhuis activities by BMS officials at another unannounced and unofficial meeting.

2004 August: The chiefs of Apoera and Washabo lead a visit to the Bakhuis exploration camp to solve social problems with workers hired by BMS from the communities.

2004 November 3-6: The chiefs of the three communities are invited to visit the exploration camp. The chiefs of Apoera and Section, together with local government officials.

2005 January: Two managers of BMS visit the Indigenous Peoples unofficially where they met the chief of Apoera.

2005 April 7: For the first time, BMS officially invited the three Lokono chiefs and the Indigenous Peoples. BMS gives an update of their activities. At the request of the chiefs, the companies agreed to hold regular information meetings.

2005 May: VIDS/NSI workshop on mining in West Suriname with presentations of BMS and Suralco.

2005 June: Chiefs of Apoera and Section revisit the Bakhuis exploration camp.

2005 August 3: BMS provides an update of exploration.

2005 August: SRK's Plan of Study for the ESIA widely released in Paramaribo but withheld from the Indigenous Peoples.

2005 September: A BMS manager and 2 SRK consultants visit the three chiefs unexpectedly to inform them about the ESIA studies. They tell the chiefs about the Plan of Study (PoS) that was released over a month ago, and promised to copy them, which they did not do. Through the media the chiefs learned that the public had until September 30 to react to the PoS. The PoS, received by the VIDS office, was written in English and very technical. The chiefs then requested a Dutch non-technical version. Indigenous Peoples working at the Bakhuis concession brought home a 4-page Dutch summary, which was as technical as the English version. SRK told the chiefs they had until October 20 to react to the document. SRK's PoS claimed there are no human settlements within the concession area.

2005 October: End of exploration phase.

2006 February: Information sharing meetings in West Suriname. SRK releases some information about the ESIA to the Indigenous Peoples, who request that Indigenous Peoples downstream of the mine on the Nickerie River be consulted.

2006 September 21: First Bakhuis Forum meeting.

2006 October: Start of Bakhuis Transport ESIA. The Indigenous Peoples receive a (new) Mining Scoping Phase Report, a plan for Public Communication and Disclosure (PCDP), and a preliminary PCDP for the Mining Scoping Phase.

2006 November: Chiefs and BMS discuss the IDC and compensation for the time the Chiefs had to spend on the project.

2006 December: SRK consultation meeting on Mining Scoping report. Visit by airplane provided by the bauxite companies of 39 Indigenous Peoples to the Coermotibo Bauxite mine in East Suriname.

2007 February: The general managers of BMS and Suralco visit the Indigenous villages to inform them about the project. The BMS contractor obstructs the road accessing the Indigenous Peoples agricultural plots.

2007 May: The Indigenous Peoples receive the Transport Scoping Phase Report and PCDP scoping phase of the Bakhuis project.

2007 May: The main meeting to discuss the IBA concept. The companies promise that in practice they will act in a way that respects the traditional rights of the Indigenous Peoples.

2007 June: SRK consultation meetings in West Suriname on the Scoping Phase Transport document.

2007 July: BMS sends the chiefs of Apoera and Section to visit to MRN rehabilitation site in Brazil.

2007 July/August: BMS sends the chiefs of Apoera, Section and Washabo to visit to a BHPB nickel mine at Cerro Matosa, Colombia.

2008 January: VIDS/NSI presentation of research findings on mining in West Suriname attended by the general managers of BMS and Suralco and government officials.

2008 February: End of SRK's ESIA Mining and Transport phases. Start of the Dredging Phase, Corantijn River.

2008 March: Release of Scoping Report on dredging the Corantijn River and the preliminary PCDP on dredging. The non-technical summary dredging scoping report distributed to the communities. BMS contractor destroys Indigenous Peoples agricultural plots.

2008 May: BMS and the three chiefs agree to work on an improved system of communication and the distribution of a joint informational newsletter.

2008 May 21: The final Bakhuis Forum meeting, at which the chiefs of Apoera, Section and Washabo receive the draft ESIA on the Mining and Transport components of the Bakhuis bauxite project. About 18 Bakhuis Forum meetings were held between September 2006 and May 2008.

2008 June: BMS presentation in West Suriname on the project plan.

2008 July/August: SRK information meetings in West on project impacts.

2008 August/September: SRK consultation meetings in West Suriname on the Mining and Transport components of the bauxite project and the scoping report on dredging the Corantijn River.

2008 September 9: Signing of a bridging agreement between BMS and the Indigenous communities of Apoera, Section and Washabo, including the Trio community at Sandlanding.

2008 September: The first and last edition of the joint newsletter, 4 months after BMS agreed to improve information sharing.

2008 October: BMS ceases all activities in West Suriname. BHPBilliton announces withdrawal from Suriname.



Taking samples from drill holes at Bakhuis

CHAPTER 1: SRK'S IMPACT ASSESSMENT: AN OVERVIEW

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1.0 Objectives of this Review

Objective of this Document: This compilation has four goals. First, the document seeks to help people who may be impacted by the Bakhuis bauxite project to understand what the impacts of the mining may be, how to prevent or minimize these impacts, and how the impacted communities might ensure that the potential benefits of the project outweigh the potential damages. Second, although the project remains on hold as of the drafting of this Chapter in September 2009¹, this document is designed to assist the impacted communities should the project resume. Third, the following chapters review the (draft) ESIA² produced by SRK in early 2008 for the Bakhuis bauxite mining project and show how their deficiencies may be rectified. This is especially critical if the ESIA – or parts thereof – are used by future developers. Fourth, an important complementary goal is to enable joint learning on how to embark properly on ESIA regarding projects that affect Indigenous and Maroon Peoples so that the ESIA process in Suriname will be strengthened.

Origin of this Document: This document is one in a series of activities coordinated by Bureau VIDS to support the Indigenous Peoples in West Suriname affected by the proposed integrated aluminum industry the Government of Suriname proposes for West Suriname, anchored in the Bakhuis bauxite mine project. In collaboration with NSI, Bureau VIDS has been undertaking training on ESIA with the affected Indigenous villages in West Suriname for several years producing a series of reports documenting the process (See Ch. 4). Capacity-strengthening on ESIA included transporting the Chiefs and community members to inspect similar bauxite mines in Eastern Suriname, learn from the disastrous involuntary resettlement from Brokopondo Reservoir, and discuss their experiences with the Saramaka Maroons. In addition, NSI facilitated an exchange visit with members of a Canadian First Nation that had already undergone similar impacts from mining and experienced negotiations with BHP Billiton. As can be seen from the list of key events, leaders of the Lokono villages of West Suriname visited MRN's bauxite mine up the Trombetas River in Brazil, and Billiton's Cerro Matoso nickel mine in Colombia. VIDS and NSI accompanied those components of SRK's ESIA they could and discussed each step with

¹ BHPBilliton suddenly quit Suriname in late 2008, with little or no explanation. Contributing factors likely included that BHPB's global profits plummeted for the year to June 30, 2009 by nearly two-thirds, and that BHPB was seemingly unable to reach an agreement with the Government of Suriname on an acceptable bauxite mining license. Alcoa's Suriname subsidiary, Suralco then took over BMS. Suralco has now become the sole owner of BMS. (See Professor Kirsch's Chapter 2 for Billiton's track record in Eastern Suriname over the last 50 years). Alcoa announced a quarterly loss of more than \$1 billion, and it plans to cut 13% of its workforce, as of its Financial Year ending January 2009. Just as BHPB quit Peru's Tintaya (Box 1), it also pulled out of its Gag Island nickel project in Papua after exploring there since 1996, partly because of opposition to one option for waste disposal, namely into the biodiverse-rich ocean which has valuable coral reefs in the vicinity

² (a) Environmental and Social Impact Assessment of the Mining Aspects of the Proposed Bakhuis Bauxite Project. (b) Environmental and Social Impact Assessment of the Transport Aspects of the Proposed Bakhuis Bauxite Project. (c) Public Consultation and Disclosure Plan. (d) Environmental Management and Monitoring Plan Framework for Construction and Operations Phases. (e) Community Engagement Plan: West Suriname Communities. (f) Conceptual Closure and Rehabilitation Plan.

the impacted Indigenous Peoples. This independent review of SRK's ESIA commissioned by and undertaken for the Indigenous Peoples of West Suriname follows leading international practice with regards to ESIA, where Indigenous Peoples have access to technical assistance from experts of their choice. To this end, VIDS selected a team of experienced specialists who had had no previous ties to the Bakhuis project. This independent review was also viewed as critical because the ESIA documents provided by SRK were extremely technical, and not understood by the Indigenous Peoples of West Suriname. It should be noted that the substance of this independent review will be summarized into plain language, translated into Dutch, and disseminated in the communities. VIDS and NSI will also organize discussion of the results in the communities. The ultimate aim of this independent panel is to provide the communities guidance on SRK's ESIA.

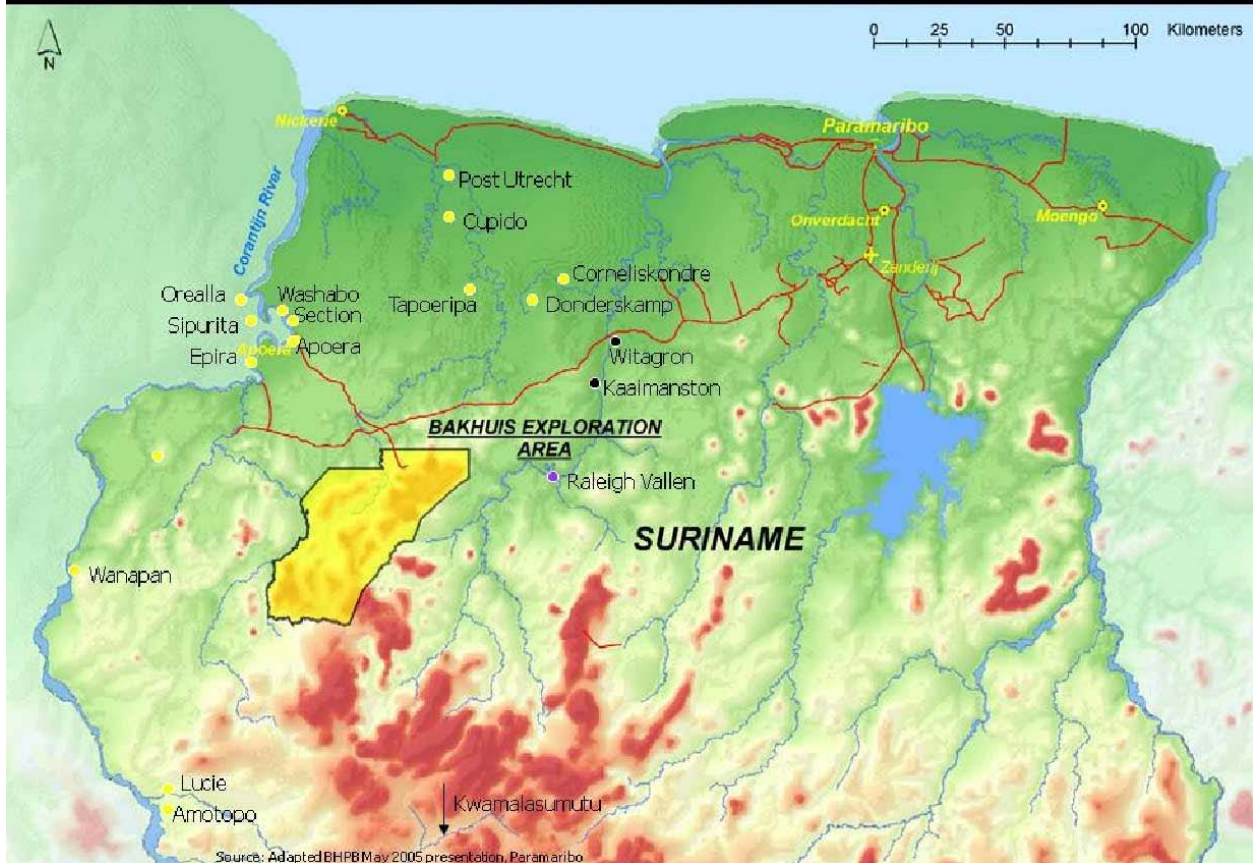
The ESIA Review Panel: VIDS empaneled four eminent persons, social science Professor Stuart Kirsch, legal scholar Professor David Hunter, environmental scientist Dr. Mark Chernaik, and water geochemist Dr. Ann Maest to provide their comments on SRK's ESIA. NSI's Viviane Weitzner had already drafted her exceptionally useful paper, "Missing Pieces" in October 2008 prior to BHPB's announcement that it was leaving Suriname, and this document is also included here. "Missing Pieces" is the best place to start reading for those readers wanting an excellent outline of the project itself before getting into the technical details of the ESIA. These internationally reputed professionals therefore became the *de facto* Impact Assessment Review Panel. Most served *pro bono*. Stuart Kirsch and Viviane Weitzner visited the Bakhuis impact zone and listened to the affected Indigenous Peoples firsthand. Normally the Government's environmental ministry would conduct its own review of the ESIA, but Suriname's environmental agency NIMOS has not done so. The VIDS Review Panel is strong on legal aspects (David Hunter), water quality and water pollution (Ann Maest), anthropological and sociological expertise (Stuart Kirsch), and environmental impacts by environmental lawyer and scientist Mark Chernaik, who has been the Staff Scientist of the Environmental Law Institute since 1992.

Objective of ESIA: The paramount goal of ESIA's in general is to limit harmful impacts from development to people and their environment. To prevent such damage, the ESIA must be frank, inclusive, transparent and conscientious. This document explores the extent to which SRK's ESIA meets that paramount goal.

Agricultural plot at Washabo



Bakhuis Concession Area



2.0 Checks-and-Balances to Promote Frank ESIA's

The practice of conducting ESIA's began in the late 1960s and early 1970s. During the last half century, the ESIA has been gradually improving so that most elements are well known and have become standard procedure. An important element of the process is the establishment of checks-and-balances to ensure that the process is as frank and transparent as possible. The ESIA has become one of the most successful tools in improving economic development by minimizing negative impacts, while boosting positive impacts, and saving much money by preventing problems. By and large, ESIA works well and effectively. However, in the Bakhuis case, it will be seen that the standard system of check-and-balances seems to have largely been by-passed

Checks and Balances

Professional project proponents want to keep their reputations and want to avoid causing social and environmental catastrophes.

1. Professional ESIA specialists who value their reputations beyond the next contract will be frank even though the proponent may not be pleased.
2. Public participation is very healthy, and normally mandatory, because the public knows details unknown to both the proponent and ESIA Company.
3. The government's environmental ministry³ or equivalent is professionally charged in distinguishing between reliable, preventive ESIA's and greenwash ESIA's that will attempt to understate risks and hide or downplay significant impacts. Many environmental ministries are new, under-funded and lack much experience in evaluating ESIA's. Many environmental and social units of the government are politicized.
4. The financiers' (e.g., World Bank, IDB, UNDP) environment and social (E&S) units have a duty to learn the true costs, whether high or low, before advising their banks to invest. In the Bakhuis case, there seems to be no international financing.
5. Civil society organizations often bear the brunt of addressing direct and indirect impacts; therefore, they must have a role in decisions that may affect them.
6. The proponents' in-house Environmental and & Social units have a duty to let their corporations know the true costs in order to safeguard corporate reputation, make decisions based on true costs, and save money by preventing problems beforehand. Even so, in corporations and bureaucracies, the in-house E&S unit is more popular if it doesn't keep finding problems or objecting to projects.
7. The Panel of Social and Environmental Experts (PoE) is a mandatory precaution expressly designed to keep the ESIA team as balanced and as candid as possible. The PoE cares more for its candor and scientific reputations and less for keeping its paymasters happy.
8. The ESIA Team is or should be composed of professionals concerned with their reputations for accuracy in assessing impacts and preventing expensive subsequent damage. The CVs of the proposed ESIA team is thus one place that must be checked before the team is hired. There is a tendency to put engineers, political types and other non-environmental scientists on the team in order to tone down any expensive findings.
9. The Independent ESA review is another mechanism set up to help ensure that the ESIA is reliable and frank before the authorities accept the ESIA for permitting. This book is an independent review of the Bakhuis ESIA.

³ Suriname lacks legislation governing ESIA preparation. NIMOS was created as a tiny unit in 1998 and was put inside the Ministry of Labor, Technology and Environment in 2000. Although partly financed by the InterAmerican Development Bank, NIMOS remains severely constrained financially and has few professional staff. Commendably, NIMOS has a policy on the environmental aspects of mining (See: Professors Kirsch and Hunter's chapters). Despite the fact that the Bakhuis Bauxite project is Suriname's biggest project by far in its entire history, NIMOS was unable to accompany the ESIA process, did not manage to hold any hearings about the ESIA, and as far as we are able to ascertain, has not opined on the ESIA, now over twelve months since release.

3.0 Was the 'Scoping' Stage Omitted?

The ESIA must cast its net widely at first in order to include all possible impacts from the broadest list of stakeholders. Later, the long list of possible impacts is trimmed down during the essential "Scoping" stage to a more manageable list that has been agreed upon by stakeholders. Thus, "Scoping" has the twin functions of, first, focusing attention on likely and significant impacts, and, second, winning agreement on what is less important for inclusion in the ESIA. Scoping ends with an agreed-upon design of the 2-3 year ESIA process. Stakeholder agreement is necessary for several reasons. If stakeholders agree to the design of the ESIA, they are much more likely to buy-in to the conclusions once the ESIA is nearing completion.

In the case of the Bakhuis ESIA, the ESIA scoping process was omitted, overlooked or disregarded. VIDS and NSI repeatedly asked the mining proponents for the scoping document, but never received them. VIDS heard that something akin to scoping may have taken place in Wales UK, with SRK and others well in advance of the ESIA launch, but were not provided with the results. BMS hinted that the Wales document was 'high level', as were consultations relating to it, and therefore concealed from the public. In practice, the ESIA got off to such a stumbling start that we suspect that scoping did not take place or was not followed by SRK when they began the ESIA process. Our suspicions are further supported by the many preventable ESIA errors. Omission of scoping probably was the main reason the ESIA was led astray from the outset.

The second error was the omission of any social and environmental assessment for the exploration stage of the 2,800 Km² Bakhuis bauxite concession. That BMS publicly apologized thrice for this violation did not mitigate the impact of hundreds of drill holes and drill pits, seismic explosions, hundreds of kilometers of trails cut in the pristine rainforest, construction of barbed wire fences – all the standard parts of exploration. Such exploration trails are used by drug traffickers, illegal loggers, and hunters all using off-road all-terrain vehicles, so impacts can be substantial.

One major impact was that the whole exploration concession was declared out-of-bounds for all people, including Indigenous (and Maroon) Peoples using the area for fishing, hunting and gathering. The Indigenous Peoples bore the brunt of these impacts in the forests that provided their livelihood.

Finally, probably because of the lack of the scoping step, standard ESIA practice was disregarded by splitting the ESIA into several disjointed segments. All focus started on the mine itself, with no mention of the impacts of bauxite ore to be transported away from the mine; this later became the subject of a separate ESIA. The ore rail was omitted, as was the siting and construction of the new port adjacent to Apoera. Bauxite loading impacts are absent. The potentially major impacts of river dredging are overlooked, and were to be the subject of a separate ESIA. Ore barge transport from the port down the Corantijn River, out to sea, along the coast of Suriname, then up the Suriname River to Paranam were excluded. Much later, when the communities pointed out these major defects, such essential components were retrofitted as

separate ESIA's. This artificial splitting of the ESIA into disparate components meant that cumulative impacts were disregarded, the various ESIA's were scarcely integrated, and the main impacted stakeholders were misled and confused.

Box 1.

BHPBilliton's Tintaya Copper Mine in Peru

(After: Barton et al. 2006, Rangan et al. 2006, and Matiation 2002)

Suriname's Bakhuis proponent, Australia's BHP-Billiton, the world's biggest mining corporation, had major problems with the impacted host communities at its Peruvian open-pit copper mine Tintaya, which it bought in 1996. BHPB rapidly expanded the mine without seeking consent from the impacted communities. The sulfuric acid-leach process on copper oxides, and the environmentally devastating froth-floatation method of copper sulfide ores began. Sulfuric acid and other toxins soon began leaking from the waste lagoons into the local creeks and groundwater. Downstream riparian communities began suffering from acute skin diseases, intestinal malfunctions and pervasive migraines. In addition, mine dust killed cattle pastures and severely damaged agriculture thus exacerbating the poverty of the communities downwind. Human rights abuses were alleged. There were no grievance mechanisms. All complaints were ignored for the first few years of community suffering. Dialogue was reluctantly permitted only 4-5 years later in 2000 after civil society organizations took an interest in the case. Oxfam Australia and Oxfam Americas linked up with CONACAMI and CooperAcción to pressure BHPB to set up a grievance procedure and to take seriously the deteriorating public health and other issues. Australia's Mining Ombudsperson wrote to Ian Wood, BHPB's Sustainability Vice President in 2002. 2002 and 2003 saw 18 months of shutdowns and lock-outs. Dialogue eventually ensued. In 2003 and 2004 BHPB signed two separate community development agreements with impacted stakeholders. The 2003 agreement contributed three per cent of Tintaya's annual pre-tax profits to sustainable projects and infrastructure in Espinar Province. In December 2004, after three years of negotiation, BHP Billiton and the five communities signed an agreement compensating families for lost land and livelihoods and establishing a local environmental monitoring team and community development fund to be set at an annual \$1.5 million. Soon thereafter, vandalism sparked a month-long shut-down in June 2005 costing about \$1 million each day. Impacted communities requested that the \$1.5 million Trust Fund be upped to \$20 million -- commensurate with deteriorating public health -- the urgent need for a hospital, and to redress other damages wrought by the mine. The Government mounted a commission to look into the causes of the riot. A year later, BHPB pulled out of Tintaya, selling it off to Xstrata in 2006. Workers struck again in 2009; Xstrata laid off 95 workers. In view of this recent and vivid experience, why did BHPB expect double standards between domestic Australian behavior and their behavior in Peru and Suriname? Does BHPB really expect to follow higher standards at home in Australia and lower standards overseas? Eventually, BHPB publicly accepted to follow Free, Prior and Informed Consent in Tintaya, but retracted that promise in the Bakhuis case. The IACHR has mandated that indigenous rights in Suriname be legally recognized, subsequently reinforced by the UN General Assembly.

4.0 Has Best Practice Been Followed?

Standard procedure is the ESIA to state up-front what international standards will be used during the ESIA process. There are many codes of conduct, best and industrial practice, standards, and guidelines to choose from. A sample is listed in Box 2 below.

Box 2:

Codes of Conduct and Standards Commonly Followed in the Extractive Industries

- EITI: The Extractive Industries Transparency Initiative Plus Plus (EITI++).
- UNDRIP: The United Nations Declaration on the Rights of Indigenous Peoples.
- IRMA: The Initiative for Responsible Mining Assurance (IRMA).
- The Voluntary Principles on Security and Human Rights.
- The Equator Principles.
- The Extractive Industry Review.
- Corporate Social Responsibility.
- The UN Global Compact.
- The Environmental Liability Directive.
- IPIECA Guidance Document on Sustainable Social Investment.
- The ECOWAS Directive on the Harmonization of Guiding Principles and Policies in the Mining Sector.
- UN ILO Convention 169: Core Labor Standards.
- The International Convention on Economic, Social and Civil Rights.
- The International Convention on Elimination of all Forms of Racial Discrimination.
- Convention on the prevention and punishment of the crime of genocide.
- Voluntary Principles on Security and Human Rights.
- U.N. Norms on the Responsibilities of Transnational Corporations with regard to Human Rights.
- The OECD Guidelines for Multinational Enterprises.
- The Akwé:Kon Guidelines

From the outset, BMS promised to follow best practice and World Bank “safeguard” policies. The Communities and VIDS failed to obtain this important commitment in writing, although the ESIA repeats it. Months later, these high standards were lowered unilaterally when BMS committed to follow IFC’s Performance Criteria and the Equator Principles. As will be shown below, even these standards were not met by the ESIA at many critical junctures.

Transparency: Although the mining proponents committed themselves on different occasions to follow both standard international practice and industry best practice, transparency was lacking throughout. One example is that the proponents claimed that the scoping process had taken place (see above), but repeated requests for the Scoping Report were rejected.

As another example of lack of transparency, standard practice should have been to convene an independent Panel of Social and Environmental Experts (PoE). Instead, a single individual

(Willem Buursink) was commissioned by BMS to conduct the review, although the Terms of Reference were not divulged and he never met with members of the impacted Indigenous communities. Additional reports have not been made public, such as those by Robert Robelus and Gordon Appleby, but transparency is at such low ebb that we are unable to request them by author or title.

Consultation, Participation and Consent: The Communities found it odd that SRK totally excluded Indigenous Peoples from the initial scope of work and that they were omitted from the list of stakeholders. SRK was asked why Indigenous People would not be consulted and why they were not considered to be stakeholders, when in fact they are not only stakeholders but rights-holders in their traditional territories. SRK replied that there are no Indigenous Peoples anywhere near the Bakhuis project, and that no Indigenous Peoples inhabited SRK's as then undefined "potential impact zone". This suggests either a state of ignorance in SRK, or purposeful exclusion.

Vulnerable ethnic minorities were by then all too familiar about BHP Billiton from their operations in Australia. Similarly, Suralco had been impacting Indigenous Peoples and Maroons since 1917 when mining operations began in east Suriname, and also in the mid-1960s during the filling of the 1560 sq. km. Brokopondo hydro reservoir in which more than 5000 Maroons were displaced, some more than once due to miscalculating the reservoir water levels. Community engagement in major projects has become well-known, as usefully outlined by Herbertson et al. 2008. No compensation was provided whatsoever, suggesting that the people forced out of their ancestral homes did not count sufficiently. In fact, the numbers of people displaced was never calculated and estimates differ markedly. The Brokopondo hydro fiasco was so heedless of humans and their environment that it still colors the hydro controversy to this day (e.g., Brokopondo: Stories of a Drowned Land 1994, World Commission on Dams 2000).

Then SRK released their plan for the ESIA. Again Indigenous Peoples were excluded. The numerical ratio between impact assessment on plants and animals versus assessment on humans was about 12:1. In other words, SRK allocated 12 times as many studies to the biota, but minimal assessment of impacts on humans, their health, safety, and employment.

It took strenuous interventions by the Indigenous Peoples, supported by VIDS and NSI, at several meetings with SRK, before they reluctantly corrected their errors and added Indigenous Peoples to the ESIA plan. This was yet another result partly of faulty or zero scoping. Such interventions were very expensive to the Indigenous Peoples in terms of time taken away from subsistence and other activities -- including their focus on receiving recognition for their land rights -- much time and expense (e.g., air fares) spent on meetings in far-away Paramaribo, and stress in fostering consensus inside the communities to agree on the best joint position before each meeting. It took the communities, VIDS and NSI months to persuade SRK to acknowledge that Indigenous Peoples are legitimate stakeholders, as they are the main communities impacted by Bakhuis. BMS refused to acknowledge the Indigenous Peoples' requests to be recognized as rights-holders, rather than just another stakeholder group.

Excluding the Nickerie Watershed Communities: After SRK reluctantly included the four Indigenous Peoples communities along the Corantijn River as potentially impacted stakeholders in the ESIA plans, the Chiefs were aghast that the main water catchment draining the area to be mined, namely the entire Nickerie River system, was excluded from the EMMP. The Chiefs pointed out that the three Lokono communities (Apoera, Section and Washabo), and the Trio community within Apoera (Sandlanding) now belatedly acknowledged, were not the only Indigenous Peoples potentially impacted. The Mining ESIA rules that there will be no significant impacts downstream on the Nickerie, partly because SRK was almost unaware that there are any villages downstream. This meant that all the Indigenous Peoples communities in the Nickerie drainage system were ruled out of the ESIA. VIDS' Carla Madsian and I made a special study of most of the communities thus ruled out of court by SRK. Based in Donderskamp, we travelled the region, listed the villages by name, identified the many people whom we met downstream from the area to be mined in the Nickerie catchment, and faithfully recorded their concerns. It took several more months to get SRK to admit that the main river draining a major mine, of course, must be included in the ESIA. However, these communities remain excluded from SRK's EMMP. Similarly excluded from the ESIA are all the Corantijn Indigenous Peoples communities on the Guyanese side of the river, despite years of entreaties for them to be included.

These sad episodes illustrate the cruel asymmetry of power. Here were ostensibly one of the most experienced and munificently financed ESIA teams in the world, supported and directed by the powerful corporations Alcoa and BHPB, supposedly knowledgeable about all standard components of such ESIA's, not only committing massive errors, but worse, in fiercely resisting their rectification when pointed out by the beleaguered ethnic minorities. Through the years, all concerned were most encouraged when SRK brought in more senior officials (e.g., Tim Hart) to strengthen the original team that was blundering. BMS also brought in senior officials when the errors, violations and controversies reached their ears.

After more than a year of such astonishing behavior in which SRK' plane landed in the communities and expected a meeting place to be found and cleaned, dozens of chairs to be arranged, electricity to be supplied, and an audience to be assembled to be lectured at before SRK's afternoon flight back to Paramaribo, the Indigenous Peoples decided to prevent further damage in two ways, through communications and consultation.

The Communications Centre: First the communities requested a modest communications center in which copies of documents (such as letters, tapes, telegrams, faxes, maps, diagrams, blueprints, schedules, posters, newspaper articles etc) about the project could be stored and filed so that everyone in the community could have access to them. In the conditions prevailing in the communities, combined with high rainfall, porous roofing, high humidity and voracious insects, such protection was essential. There was one telephone in the communities at the time, although it did not work at all on the several occasions I tried to use it. Initially SRK and Suralco declined to support the plan for a communications center, even though this has become standard practice in most ESIA's of this type. Eventually the communities were able to convince SRK and Suralco of the value of a communications center, which has helped to keep the communities informed,

promoted continuity and provided a valuable track record of promises and commitments on both sides.

The Consultation Protocol: The second measure taken by the Indigenous Peoples was the compilation of what came to be called a consultation protocol. This Protocol is included as Annex 1. The communities had found abrupt and unannounced arrivals of SRK to be onerous, unsatisfactory, pressuring and disturbing. This was because after the hastily arranged meeting with whatever villagers happened to be rounded up, they asked themselves when SRK's 'plane departed that afternoon: *“Why did they come? Why didn't they warn us? What did they tell us? What did they want? What have we promised that we will regret? What precisely did they promise for us?”* On arrival, SRK demanded villagers be assembled often from their distant subsistence plots at once to be spuriously “consulted” on topics not yet specified, in a language alien to practically all attendees, and in the technical jargon of the arcane ESIA-speak. As these are fishing, hunting and forest harvesting communities, many members never were able to participate.

Traditionally, the Indigenous Peoples seek consensus on issues regarding the communities, so it took much time and debate to reach all villagers. The resulting consultation document was circulated by the Indigenous Peoples in draft for some time in order to build consensus, to allow for the incorporation of the views of members absent at the main discussions, and to provide space for the government, SRK and the mining proponents to provide comments.

The Consultation Protocol essentially set out mutually acceptable procedures and the behavior expected by the Communities during the consultation process, what they expected SRK to do, and what behavior had been found unproductive and threatening. The document established the conditions under which the communities expected to be consulted, as a critical pre-condition towards their right to free, prior and informed consent. The Indigenous Peoples requested SRK (and the mining proponents) to behave in a normal fashion of mutual respect. It asked that the proponents' oft-repeated promises of following standard ESIA practice, such as that SRK's visits be announced with due warning, adequate time to be provided for reaching decisions, that the topics to be discussed would be agreed in advance, that the costs of such meetings would be shared, that a grievance mechanism be set up, and that good faith negotiations would become the norm. This document was the most significant production by the communities in their efforts to be able to participate in decisions affecting them.

The Consultation Protocol circulated widely for months. In the end, following many revisions and adjustments, BMS and SRK rejected the Chiefs consultation protocol, as graphically recounted in Weitzner's Chapter 4. Despite the community's best efforts of facilitating the consultation process, SRK and the mining proponents excluded the document from further consideration. The mining proponents objected³ partly because BMS followed the World Bank's Legal Department hoax of free prior community consultation, instead of the free prior informed consent as mandated by IACHR and the UN General Assembly. The mining proponents also

³ BMS letter of 4 November 2006 to the Chiefs.

rejected the claims of traditional and ancestral rights by the Indigenous Peoples, despite the contrary ruling of the IACHR against GoS. And they did not follow the Akwé:Kon's guidelines, voluntary guidelines negotiated by parties to the UN Convention on Biodiversity for the conduct of cultural, environmental and social impact assessments regarding developments proposed to take place on, or which are likely to impact on, sacred sites and on lands and waters traditionally occupied or used by indigenous and local communities, as is precisely the case of the Bakhuis bauxite mine. Perhaps the protocol leveled the playing field a little too much? Was the fervent desire of the communities to reach agreement, rather than being coerced, too much for the proponents to swallow? Were the proponents backing off from their commitments to follow IFC's Performance Standards? The Communities could not find out.

Instead, SRK stymied the efforts of the Communities by reducing consultation to a PR exercise or formality. BMS and SRK turned the tables on the Indigenous Peoples by elaborating their own plans for consultation with no reference to the views or to the Protocol of the communities. SRK and BMS then pressured the communities to accept the SRK's consultation plans and abide by them. SRK tried to work out a Public Consultation and Disclosure Plan, and commendably acknowledged that free prior and informed consent (FPIC) is a requirement. In fact, the InterAmerican Court of Human Rights has recognized FPIC as customary law long ago as 1984, as did UN ILO's Convention 169 in 1989, and the UN General Assembly. The cutting-edge 2007 Saramaka Peoples (Maroons) legally-binding decision of the IACHR requires the Government of Suriname (and third parties) to respect FPIC (MacKay 2002, FPP 2007, Goodland 2007b).

Treaties must be consensual or at least forswear the use of force or coercion (Peterson 2009). Violence is no longer acceptable as a routine tool of development; meaning consensus or consent has replaced involuntary displacement, racial discrimination, and other involuntary measures (Goodland 2007d). As customary law, FPIC became best practice about two decades ago. As of September 13, 2007, the UN General Assembly adopted the United Nations Declaration on the Rights of Indigenous Peoples, specifically mandating FPIC, a Declaration which Suriname supports and which BMS rejects. This followed more than twenty years of use and improvements about FPIC within the UN system. The mining proponents rejected FPIC in the Bakhuis bauxite project, opting instead for the weaker position of the mining industry lobby (ICMM⁴) as David Hunter (Ch. 5) meticulously documents, and Weitzner (Ch.4) highlights. SRK also failed to produce the Indigenous Peoples Development Plan as required.

SRK also failed to meet the weaker standard of "Broad Community Support" as mandated by IFC and as BHP/Alcoa had promised to follow. Just before BHPB's withdrawal from Suriname, the Chiefs were hastily pressured by BMS, into signing a Bridging Agreement without the presence of their legal adviser.

⁴ ICMM, the mining industry lobby, in some ways lags behind even mining industry leaders. ICMM twice promised to embrace FPIC some years ago, yet their draft policy, the latest version which has been circulating as of May 2008, with regard to vulnerable ethnic minorities fails to do this. ICMM still have not abandoned the artifice of FPICconsultation; nor formally adopted the official UN position of FPICconsent.

Impact-Compensation Contract: The ICC (or Impact-Benefit Agreement; Matiation 2004) is the single most important result of any ESIA, should a community decide that the project should proceed. The ICC codifies what social and environmental impacts have not been totally prevented, and following negotiation agrees on compensation (or benefits) for such residual impacts. The ICC is usually based on that chapter of the ESIA called the Social and Environmental Management or Action Plan, which sets out what preventive, minimization and mitigation the proponent contracts to implement during construction, operation and decommissioning of the mine. The ICC is a legal contract between the proponents and the impacted stakeholders. SRK's ESIA scarcely mentions compensation, and defers preparation of the ICC to some future unspecified date. Particularly worrying is that SRK does not seem to realize that the ICC has to be signed before construction can begin. The bottom line here is that there is no ICC or IBA, a major violation of best practice. As the ICC was omitted, the means of encouraging implementation of the ICC were also lacking. Specifically, the important tools of performance bonds and industrial insurance are excluded. BMS' rushed agreement with the communities committing BMS to an Impact Compensation Contract sounds like a hoax because BMS proposed to begin construction before GoS approved the ESIA, before the ICC was drafted, and before the mining exploitation permit was issued.

5.0 Conclusion

This compilation reviews an environmental assessment of one country's biggest ever development project proposed by two of the world's richest mining corporations, and undertaken by a major international engineering consulting corporation. How could this impact assessment go so far off track? Both mining proponents (Alcoa and BHPBilliton) have questionable track records. Both corporations have sparked environmental controversies recently, Alcoa in Iceland (minesandcommunities.org/article.php?a=83) and Billiton in Peru (Box 1). Neither one posted professional social or environmental scientists in-country to oversee their mining project. Some years after the ESIA began, when the social impacts had already sparked outrage and fear (some said terror) amongst the Indigenous Peoples, SRK commendably posted a junior social official, Sue Reuther, in Paranam. Although the selection of a South African company to undertake the ESIA with little experience in Latin America and no experience at all with Indigenous Peoples was never clarified, it looked odd from the beginning.⁵

Suriname's governance is weak and democracy fragile (Singh 2007). Prudence with the environment is embryonic at best. Respect for Indigenous Peoples was never a strong point in the country, rhetoric to the contrary, witness the international lawsuits in the Saramaka case. Despite best efforts of the InterAmerican Development Bank in trying to strengthen the government's environmental capacity, despite the Association of Indigenous Village Leaders in Suriname (VIDS), and despite the multi-year efforts of The North-South Institute, the impact

⁵ SRK specializes in supporting the mining and extractives industries, mainly in engineering and geotechnical services. Environmental and social impact assessment services were added more recently, but are still in the minority compared with mining engineering. Well-reputed social and environmental professionals are on staff, but they may be either riskily over-stretched or over-ruled in this case.

assessment got off to a wobbly start and never recovered. The result is a sub-standard impact assessment that demands little from the mining corporations and undermines the livelihoods of the Indigenous Peoples. In spite of the gross asymmetry of power of the multinationals compared with the huge lack of finance, information and resources of the Indigenous Peoples and their supporters, who 'won'?

The Indigenous Peoples have had a tremendous learning experience of what an ESIA is or should be and how to influence it -- as is their right. They are now in a position to prevent being brow-beaten and steam-rolled in any future developments. The mining proponents agreed to produce an IBA, which represents major progress for any future projects. An optimistic view would be that GoS is more likely to mandate more serious attention to and respect for Indigenous Peoples in future developments. Multinationals will be expected to raise their social and environmental standards at least to average international practice, or even to their own domestic standards in future developments in Suriname.

ESIA is critical in major extractive projects in order to minimize collateral damage to people and to ecosystem services. ESIA is crucial as a link to FPIC. While SRK's ESIA was deficient, there have been major steps (e.g., IBA, recognition of Indigenous Peoples) towards more appropriate processes that we hope will shift towards fully effective processes in the future. This exercise, this review, and this learning experience is in the best interest of Suriname and all its citizens, Indigenous, Maroons and others.

This review emphasizes the important role of government in this and future ESIA's. The people of Suriname need the GoS to intervene and protect citizens and resources. Participatory ESIA is a critical part of the FPIC process as the IACHR ruled for the Saramaka People. This includes negotiating IBAs, as part of the FPIC process, as it is not possible to negotiate and agree on impacts and mitigation measures without a participatory and independently reviewed ESIA. As the Court explained, Akwé:Kon should be used in relation to ESIA in Indigenous Peoples territories. The communities can use this review of SRK's ESIA as leverage as soon as Bakhuis becomes active once more.⁶

The wider message is that, given such unfavorable -- but mercifully very rare combination of circumstances -- today's standard ESIA process cannot withstand the combination of environmentally skeptical proponents, weak governance, little regulation, and an unenthusiastic ESIA team. If proponents want to get away with shoddy impact assessments, it is up to government to stop them and insist on prudent standards in their country. International standards for impact assessment need to be overhauled. Development agencies, the UN, and impact assessment professionals (e.g., IAIA) will have to ramp up their efforts if similar cases are to be prevented in the future. As the world is already reeling from environmental pressures (climate change, the water, food and economic crises) time is short.

⁶ Suriname industry: Government, Glencore partner in bauxite sale negotiations with Alcoa. London, Economist Intelligence Unit, EIU Country Analysis, May 05, 2009.

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Collecting medicinal leaves



CHAPTER 2: COMMENTS ON THE BAKHUIS DRAFT ENVIRONMENTAL AND SOCIAL IMPACT REPORT

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1.0 Preface

This review provides comments on the social and environmental aspects of the Bakhuis Environmental and Social Impact Assessment (SRK Consulting 2008a).⁷ It focuses on social impacts, but the major environmental impacts of the project are also evaluated for their social consequences.

The Bakhuis Bauxite Project has been usefully summarized as follows:

BHP Billiton and Alcoa intend to mine in a concession area of 2800km². Related activities will entail transporting the bauxite by rail to the nearby Lokono Indigenous communities of Apoera, Section and Washabo, and then barging the raw product down the Corantijn river, along the Atlantic, and up the Suriname river to the Paranam refinery for processing into alumina. The Corantijn River and Suriname River will first need to be dredged to enable the transportation of the bauxite, and the Paranam refinery adapted to the lower grade bauxite from Bakhuis. Current plans are for the alumina to be exported for smelting. Nonetheless the Government of Suriname has indicated it is very interested in pursuing an integrated aluminum industry, and has taken actions that show it is seriously considering large-scale hydroelectric development in West Suriname (the Kabalebo Project) to fuel a smelter that will enable processing of the bauxite in Suriname. Further, studies and consultations are currently underway for the establishment of large-scale infrastructure (the IIRSA project), including roads that will connect Suriname to Guyana via a bridge (in the vicinity of the Indigenous villages of Apoera in Suriname and Orealla in Guyana), to facilitate the movement of goods related to bauxite mining across the Guyanas, and provide a road link for other forms of trade running from Brazil through the Guyanas to Venezuela. Conservation offsets for the Bakhuis Bauxite Project include consideration of the Kaboerikreek Protected Area, adjacent to the community of Washabo.

These proposed activities overlap with the traditional territories (both land and water) of the Indigenous Peoples of West Suriname, including the Lokono communities of Apoera, Section and Washabo; and Guyanese Lokono communities living along the Corantijn who also hunt and fish in Suriname. Other affected communities include the Trio settlement of Sandlanding located in Apoera, whose livelihood activities will be affected, as well as Indigenous and Maroon villages downstream of Bakhuis in the Wayambo area. Should the hydroelectric plans become a reality, the traditional territories of Trio communities and associated Indigenous Peoples in Suriname's Interior will also be severely affected. The barging along the Atlantic and in the Suriname River may also affect other communities using these areas for livelihood purposes (Weitzner 2008:1).

⁷ Robert Goodland, Carla Madsian, and Viviane Weitzner provided very helpful comments and information on the first draft of this report, although I assume full responsibility for the final product.

The objectives of this review are:

1. to provide an independent assessment of the Bakhuis Bauxite Project and its potential impacts for the use and benefit of the communities that will be affected,
2. to provide an assessment of the ESIA based on knowledge of comparable projects in Suriname and elsewhere⁸, and
3. given that BHP Billiton is no longer involved the Bakhuis project, to provide feedback on the ESIA document in the event that it is used as the starting point for future project planning by other corporate partners.

This report is based on one week of ethnographic research in Suriname from 19-25 October, including several days of focus groups, interviews, and other meetings with the people from Apoera, Section, Washabo, and Sandlanding. I also received a short tour of the mine site at Bakhuis from a BHP Billiton staff member. The three Chiefs from the Lokono villages were especially frank and helpful in our many conversations. A separate visit to the BHP Billiton/Suralco Wane Hills bauxite mine in East Suriname, now closed, provided additional information of value for this report.⁹

1.1 Fragmented Scope of the ESIA Process

An important shortcoming of the SRK ESIA is its failure to include information on river dredging in the transportation studies or to consider the impacts of the potential Kabalebo hydroelectric project. Weitzner (2008:11) comments that “The fragmented approach to the ESIA process has been the subject of much comment by the affected communities... and others. Breaking up the project into separate elements disaggregates the project impacts to such a degree that it is currently impossible to determine the full scope of impacts of mining-related activities with the documents provided.” In the United States, it is illegal to conduct ESIA sequentially to “evade the full measure or cumulative assessments of environmental impacts” (Chernaik and Leonard-Cahn 2008).

In addition, recent events in East Suriname suggest that the impacts of bauxite mining are often compounded by related economic developments, including legal and illegal logging and other kinds of mining, which are facilitated by the opening up of roads into the area (Kirsch 2009). The SRK ESIA only briefly refers to logging and the potential mining of kaolin and other minerals at Bakhuis, including copper and nickel (Buursink 2008:16). Although it is not

⁸ The task of environmental and social impact assessment has been defined as “experienced production” which “comes from (a) knowing what happened in similar cases elsewhere, (b) comparing recent similar projects, and (c) examining the recent track record of the proponents, in this case BHP Billiton and Alcoa/Suralco” (Goodland 2006:4).

⁹ For both trips, I am grateful for the knowledge, advice, and translations of Carla Madsian from VIDS.

necessary to plan on the basis of the greatest potential cumulative impacts, it is certainly prudent to analyze them thoroughly when conducting an ESIA.

1.2 Failure to Conduct ESIA for Exploration Phase

Until 2005, BHP Billiton did not conduct social and environmental impact assessments of its projects in Suriname because there “is no formal requirement under Suriname legislation for an EIS” (Ian Wood, Vice President for Sustainable Development and Community Relations, BHP Billiton, 20 February, 2009) despite the longstanding global norm for conducting such studies. Consequently, BHP Billiton and Suralco did not conduct environmental impact studies for their bauxite mines in the Wane Hills in East Suriname (see 14.4). They also failed to conduct an ESIA assessment for the exploration phase at Bakhuis in West Suriname:

Exploration here means searching for bauxite in a concession of 2,800 sq km of primary tropical rainforests. The process of estimating how much bauxite is in the ground causes major impacts. In the case of Bakhuis, exploration was completed before any environmental and social precautions were in place. Thus, several hundred of kilometers of roads, and major bridges, were built or upgraded through rainforest.

In addition, about one thousand kilometers of drill lines have been cut in the forest. Drill lines are paths cut through the forest to enable the mobile drilling rigs, all-terrain vehicles, mechanical ‘mules’, and even some 4-wheel drive vehicles to drill in the right places. About 7000 boreholes have been drilled. Drill lines are often 2m-wide, hence constitute a major un-assessed impact already. This opens up vast areas for such traffic (Goodland 2006:6).

2.0 Land Rights and Free Prior Informed Consent

One of the most contentious issues for the Bakhuis project is Indigenous land rights. Suriname does not recognize Indigenous land rights despite its international commitment to the 1969 American Convention on Human Rights and the 2008 Saramaka People Judgment (Rinaldi & Rivera 2009).

BHP Billiton followed Suriname's position on Indigenous land rights. The Transport ESIR states that “it is not within BMS's mandate to address land rights issues in Suriname” (cited in Weitzner 2008:60).¹⁰ However, the SRK ESIA notes that: “The fact that BMS has previously received exploration concession rights in the area, whereas to date communal land rights have not been granted to the Indigenous communities, has exacerbated Indigenous people's sense of unease about their continued access to land in the future” (SRK Consulting 2008a:10-14). Consequently, it has been argued that “It is in the interests of BHP Billiton to encourage the

¹⁰ BMS is NV BHP Billiton Maatschappij Suriname.

government to legally recognize land rights, and secure those rights through effective and collective land titling promptly” (Goodland 2006:10).

In effect, BHP Billiton asked the Indigenous communities to accept less than their full rights under international law by claiming that the government of Suriname prevented them from recognizing Indigenous land rights. (This parallels their argument prior to 2005 that they need not conduct ESIA of their projects because they are not required by law in Suriname). BHP Billiton must obey the laws of Suriname, but they are not legally prohibited from recognizing Indigenous land rights.

The UN Special Rapporteur on Business and Human Rights John Ruggie (2008) recommends that transnational corporations follow the highest international standards for human rights regardless of the existence of lower standards in the countries where they operate. In this case, however, BHP Billiton found it strategically advantageous to follow the policies of the Suriname government towards Indigenous peoples. The company follows different standards depending on the country in which they are operating rather than following the highest possible standards regardless of local laws.

BHP Billiton's decision to conduct discussions with Indigenous peoples in the process leading to the ESIA was motivated by the mining industry's recognition of the need for a “social license” to operate (SRK Consulting 2008a:8-11) rather than recognition of their rights as landowners. Consequently any formal or informal agreement between the company and the communities depended on BHP Billiton's good will. This is a very weak basis for negotiation by the Indigenous communities (see Hunter 2009:3). It also places the local communities at risk should the company carrying out the project change, which happened in Fall 2008 when BHP Billiton pulled out of the Bakhuis project, with the result that any informal progress towards mutual understanding with the company was largely rendered meaningless.

One could go a step further to argue that these circumstances placed the people of Apoera, Section, Washabo, and Sandlanding in a double-bind; if they did not agree to support the mining project, they could easily be ignored in its planning phase and the subsequent distribution of benefits. This is very different from the international standard of free prior informed consent or even the World Bank IMF standard of informed consultation: it is a form of coercion.¹¹

BHP Billiton and Suralco purport to follow the standard of the International Council of Mining and Metals (ICMM 2006), which commits its members to “seek to gain and maintain broad community support for their activities throughout the project cycle...” (SRK Consulting 2008a:8-11). The ESIR also refers to “timely, relevant, understandable and accessible information,” “free, prior and informed *consultation*” and the requirement to “facilitate informed participated by the affected communities” (SRK 2008a:8-2; emphasis added). The ESIA commits to “facilitate Indigenous Peoples' expression of their views, concerns, and proposals in

¹¹ See also David Hunter's (2009:5) observation that: “the failure to reflect the need for ‘broad community support’ will undermine the communities' ability to negotiate a fair and equitable IBA [Impact Benefit Agreement].”

the language of their choice, without external manipulation, interference, or coercion, and without intimidation” (SRK Consulting 2008a:8-2). All of these are weaker standards than free prior informed consent.

2.1 Conservation Areas

Conservation areas in Suriname are controversial as they have been used to alienate land from Indigenous peoples. In some cases, Nature Reserves have been turned into de facto resource extraction zones, which is the case of the Wane Creek Nature Reserve in East Suriname (Kirsch 2009). Even if the Indigenous peoples are promised full access to these areas, they object to their establishment because “the rules can always change in the future.” A good example why Indigenous people have a “sense of unease about their continued access to land” (SRK Consulting 2008a:10-14) is the Buursink (2008:54) recommendation that the Bakhuis mining concession be annexed to the Central Surinam Nature Reserve (CSNR) after mine closure.

3.0 Alternative Forms of Development

The SRK ESIR is a review of a mining project and consequently it is understandable why alternative development options for the communities are not considered. However, if economic development of the area is one of the rationales for the project, then the mining project's contribution to regional development should be compared against alternative development options.

Chapter 7: Socio-economic Baseline of the SRK ESIA begins with a thumbnail sketch of the local communities and ends with an overview of the project's potential contribution to the national economy. Although the people of Apoera, Section, Washabo, and Sandlanding are also part of the larger national economy, one has to ask whether other development projects might be more beneficial to these communities. Too often the support of Indigenous communities for mining projects is contingent on the fact that they lack other alternatives, and consequently are forced to choose between development projects with very substantial impacts and none at all.

4.0 Terrestrial Impacts

The Bakhuis bauxite project has three major phases scheduled over a period of fifty years. The total area of the concession is 2,800 km², although BHP Billiton states that it will actively mine on only 3% of concession. However, the area will be crisscrossed with roads and bridges, and when all the infrastructure is included, approximately 5% of the concession area, or 140 km² will be physically disturbed (SRK 2008a:13-6). The border of the concession area is approximately 60 km from Apoera Plan, although a significant proportion of the catchment area of the project was previously used for hunting, fishing, and other activities.¹²

¹² The figure used in the SRK ESIA is 75 km, which appears to be the distance from Apoera Plan to the center of the concession. In this review, I use the figure 60 km, which is the distance from Apoera Plan to the edge of the concession area.

Even though the actual area mined will be a small percentage of the total concession, impacts from legal and illegal logging may be significant. The Suriname government stated at a meeting on 31 August 2005 that loggers will use the network of roads constructed by the mining company (Goodland 2006:7). This poses significant problems because:

Loggers are interested only in hi-grading the forest, extracting only the few commercial sizes and species of trees, while leaving behind most of the forest as it is not commercially worthwhile. Loggers are more interested in sites where there are more commercial trees, not on the bauxite areas. In fact there may be an inverse correlation between bauxite richness and commercial trees. Once loggers have arrived in a region such as Bakhuis, it is very difficult to make them stick to the specific areas to be mined. Because logging corporations already own logging concessions to much of the Bakhuis range, and because BHP Billiton have made those concessions more valuable by opening access roads, logging could become an unwanted negative impact (Goodland 2006:7)

4.1 Rehabilitation

In East Suriname, BHP Billiton, and Suralco are jointly responsible for reclamation at the Wane Hills bauxite mine, but their efforts have not been effective. They are working under very harsh environmental conditions. The original plateau was covered by primary forest composed of slow-growing hardwoods which can only grow in mature forests. Their ecological requirements cannot be met in an open area. Instead of planting hardwood trees to rehabilitate the area, BHP Billiton and Suralco must begin by planting leguminous vines and fast-growing tree species from the genus *Cecropia* and *Carica*, the bush papaya, which are common pioneer species in cleared areas. These trees can cope with the high temperatures and dry environments created by clearing the forest. Once the trees mature and the canopy closes, other softwood species can be planted in the shaded areas underneath, gradually replacing the *Cecropia* and *Carica* trees. Only in the third phase, the mature phase of the forest, will hardwoods begin to take root and grow underneath the softwoods (See Buursink 2008:9). Even if their rehabilitation efforts are successful, it will take generations to restore the area.

Moreover, visual inspection of these reclamation areas clearly shows that relatively little effort and expense has been invested in forest reclamation at the Wane Hills mine site. In the areas I examined, one could see a small sprinkling of topsoil on the ground, holes dug into the laterite material, and the planting of a small number of *Cecropia* trees. Their growth appears stunted even ten years after they were planted. In most of the reclamation area, there is little evidence of other trees, plants, or even weeds taking root in the barren red rock. The overall impression of the reclamation area is of narrow rows or islands of replanting amidst a larger sea of red laterite. Whereas the forest canopy used to retain moisture, it is very hot and dry on the former mining site.

Figure 1: Rehabilitation at Wane Hills in the Wane Kreek Nature Reserve



BHP Billiton proposes to import new methods of reclamation employed by Mineração Rio do Norte (MRN) at the Trombetas bauxite operation in Amazonas State, northern Brazil. However, the SRK ESIA observes that there are some important differences between the two sites, including the “larger, flatter plateaus and higher volumes of topsoil at MRN,” although they conclude that “the MRN rehabilitation process is an appropriate model for the rehabilitation of Bakhuis, with some modifications required to accommodate specific local conditions” (SRK Consulting 2008b:37).

However, in one of BHP Billiton’s final meetings in Suriname, company officials indicated that they were reevaluating their rehabilitation plans (Carla Madsian, personal communication 2009). Specifically, they no longer intended to rehabilitate all of the affected areas, but only small islands within the cleared land, much like their unsuccessful rehabilitation program in East Suriname.

In contrast, the SRK ESIA evaluates an earlier, more robust rehabilitation program rather than the scaled-down version that BHP Billiton was moving towards before it left the country. Given that the promise of more successful rehabilitation measures at the Bakhuis project was one of the project’s major selling points, the significance of this policy change needs to be addressed.

Finally, there are unanswered questions about motivation and financing for rehabilitation, especially given the absence of relevant environmental legislation in Suriname. What guarantees

are there that the mining company will make the investments needed to rehabilitate the site as they mine? Will the company be rewarded through tax breaks for these efforts? Will they be punished by fines or even the potential loss of their concession if they do not follow through with their commitments to rehabilitate the area, or if their efforts fail? Or will the government of Suriname agree that rehabilitation is an arduous and challenging task, and that the company should not be punished if they are unsuccessful? How will it be judged whether the company is working hard enough to find a solution to any problems of rehabilitation? What happens if the cost-basis of the project is revised and the mining project can only go forward on the basis of reducing its costs? How will the commitment to rehabilitation be enforced?

4.2 Noise and Wildlife

Based on comments from hunters in other rain forest communities who live near similar projects, I think the SRK ESIA underestimates the impact of noise from the project on animal populations within the catchment area: "Provided BMS meets the noise standards stipulated in this ESIR, no other mitigation measures are required" (SRK Consulting 2008a:10-14). They predict "no significant impacts [of noise] on the local hunters" (SRK Consulting 2008a:10-14). But the noise from dynamite and construction equipment travels long distances in the rain forest; the people from Alfonsdorp in East Suriname say that when BHP Billiton and Suralco began using dynamite in the Wane Hills bauxite mine, the animals all fled the area.

4.3 Cumulative Effects

The SRK ESIA notes that "improvement of transport infrastructure in the region, mainly as a result of the Bakhuis Project, may facilitate the exploitation of other concessions" (SRK Consulting 2008a:11-5). Three logging companies currently operate in the area. Two logging concessions overlap with the northern portion of the mining concession and several others are located in the corridor between the mining concession and the Lokono villages (SRK Consulting 2008a:11-3). The ESIA notes that increased logging may result in the sedimentation of watercourses, but because the Bakhuis project is "not expected to contribute to such a cumulative effect," further analysis was not undertaken (SRK Consulting 2008a:11-5). The ESIA disregards the importance of other potential impacts because they "cannot be predicted with certainty" (SRK Consulting 2008a:11-5). The only impacts of increased commercial activity in the region that the ESIA is willing to concede is that they will "alter the sense of place of the region" (SRK Consulting 2008a:11-5).

I believe that the SRK ESIA is flawed for not considering the wider array of cumulative effects that will result from the project in the Bakhuis Mountains. Simply because effects "cannot be predicted with certainty" is not a legitimate reason to exclude them from the ESIA.

5.0 Watershed Impacts

The project may affect four major watersheds: the Kabalebo River, the Corantijn River, the Nickerie River, and the Coppename River.

- The Kabalebo River is an important hunting ground for the communities from Apoera, Section, and Washabo. Consequently, the ESIA recommends that additional impact assessments be carried out on the Kabalebo area and that mining in the part of the concession that drains into the Kabalebo River be delayed for at least fifteen years (Weitzner 2008:15). If a hydroelectric dam is eventually built, it will flood the Kabalebo River. Any pollution entering the Kabalebo River from the mining concession would drain into the Corantijn River.
- The Corantijn River demarcates the border with Guyana. The people of Apoera, Section, Washabo, and Sandlanding live along its eastern shore. The Corantijn River will be affected in two ways, from any pollution in the Kabalebo River, which drains into the Corantijn, and from dredging and intensive river traffic below the harbor on the Corantijn River, as discussed below.
- The first and second envelopes of bauxite production to be exploited, the two richest areas in the Bakhuis concession, drain into the Nickerie River through the Fallawatra and Mozes creeks (SRK Consulting 2008a:6-27).
- The left Adampada creek also runs through the eastern edge of the concession. It drains into the Coppename River, which runs through the Central Suriname Nature Reserve (SCNR), a World Heritage Site. BMS has committed to not mine in the 8.5% of the concession area which falls within the catchment for this creek (SRK Consulting 2008a:6-27).

The Kabalebo, Corantijn, Nickerie, and Coppename rivers are the four largest watersheds in West Suriname. They drain approximately one-quarter of Suriname's landmass. Any impacts on the Corantijn will also affect neighboring Guyana. The ESIA does not contain sufficient information to predict the level of environmental impacts from mining at Bakhuis on these river systems (Ann Maest, personal communication 2009). However, the fact that BMS elected not to mine the portion of the concession which drains into the Coppename River, despite this being one of the richer ore-bearing areas, suggests that there will be impacts from mining on local watersheds (Weitzner 2008:15).

5.1 Dredging the Corantijn River

BHP Billiton did not complete an ESIA on its plan to dredge the Corantijn River so that barges carrying bauxite ore can travel from the harbor near Sandlanding to the Paranam refinery via the Atlantic Ocean. According to Buursink (2008:56), annual dredging will involve removal of 1.5

Mm³ of sediment. The operation of the dredge will disrupt fishermen, the operation of passenger boats, and shipping traffic (Buursink 2008:56). There are indications that an exclusive zone for corporate traffic will be established in the river (Buursink 2008:56).

There are many unanswered questions concerning the impact of heavy traffic on this river. At present, the Corantijn is a central waterway for a large area in Guyana and Suriname. What will be the impact of high traffic on riverine life? How much bauxite dust will enter the river from the barges and the barge-loading system? How will dredging affect erosion along the river banks? How much oil and diesel fuel will spill into the river? Long-term dredging and heavy river traffic will eventually compromise the biological integrity of the river system. Any pollution from mining that enters the Corantijn River via the Kabalebo will only compound the problem.

5.2 Off-River Water Bodies

The SRK ESIA predicts “no impact on the available fish stock” (SRK Consulting 2008a:10-15). A key issue here is the impacts from mining on the smaller creeks and streams. During the rainy season, water from the Corantijn River reverses flow into the surrounding creeks and streams for distances up to 1-2 kilometers. The SRK report fails to mention this mechanism by which pollution could spread from the major rivers into the smaller streams. Buursink (2008:102) also emphasizes the importance of seasonal flooding in this region: “for many species, reproduction has evolved to take advantage of temporary flooded areas as refugia for early growth, and can be critical to the survival of the species.” These small drainages are “important for protecting high biodiversity” (Maest 2009:12). These breeding grounds could be affected by run-off from the mining area. Clear water is also important for ecological functioning in the Bakhuis area, suggesting that many of the species which live in this region are “not expected to tolerate long periods (i.e., longer than the wet season) of increased sediment content” (Maest 2009:6; SRK Consulting 2008a:6-54). Higher rates of turbidity are a possible side effect of mining and increased erosion, although the ESIA discusses mechanisms for drainage and sediment control (SRK Consulting 2008a:5-20, 21). Greater erosion and turbidity will also result from increased logging in Bakhuis. More attention needs to be paid to the broader ecosystem on which fish stocks and biodiversity depend.

5.3 Drinking Water

The communities of Apoera, Section, Washabo currently obtain drinking water from wells. Will chemicals from mine run-off impact local groundwater? In what direction and at what speed would chemical plumes from the mine travel? BHP Billiton promised Apoera, Section, and Washabo that it would regularly monitor their wells. Is this a legal obligation? Is there an independent regulatory body that can supervise the monitoring, ensuring that the appropriate chemicals are being tested for and that the data presented is in the correct format, i.e. that samples from each well are presented separately, rather than combined in the form of misleading averages?

There are also concerns about the communities which get their drinking water directly from the Corantijn River. There is no water supply in Sandlanding, so that community depends on the Corantijn for drinking water. When there is a problem with the local water system in Apoera, Section, and Washabo, people from these communities also get their drinking water from the river. In addition, when traveling on the river, the Indigenous people will also drink from it, especially when hunting and fishing. Other communities living on the Corantijn River in Guyana also use the river for drinking water and other domestic purposes.

Alternative water supplies will have to be developed for the people living downstream of the harbor area. Indigenous use of the river water for bathing, washing, and drinking are incompatible with industrial use of the same area.

6.0 Best Case Versus Alternative Scenarios

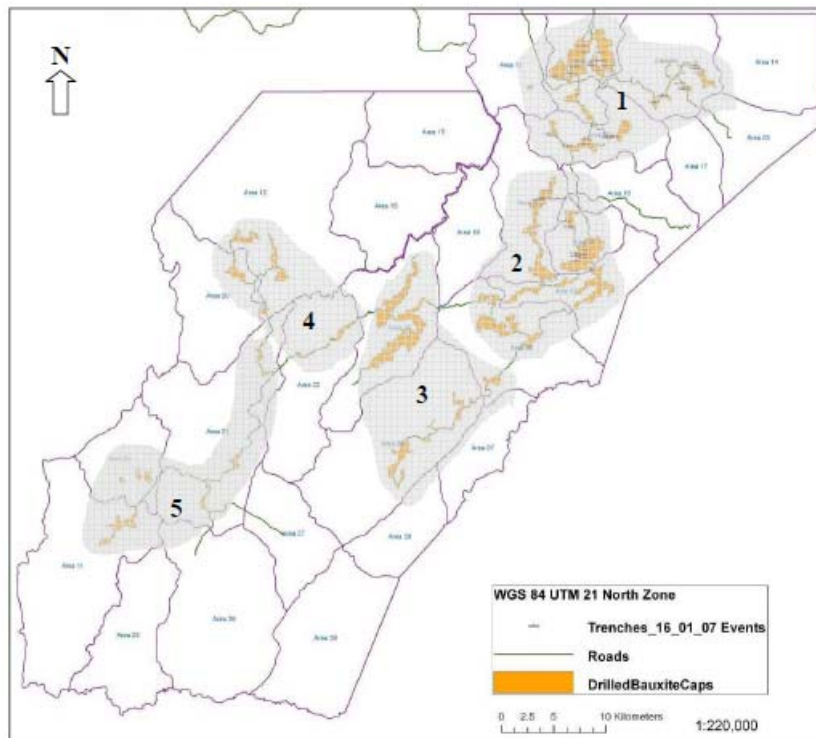
Kuipers et al. (2006) have shown that mining project ESIRs routinely underestimate negative impacts. The SRK ESIA should present data for two different scenarios: the best case scenario in which mitigation efforts are the top priority of the mining project, cost-effective, and work, and a more realistic scenario in which commitments are mixed, cost affects implementation of mitigation strategies, and mitigation strategies do not perform as well as predicted. In contrast to the best case scenario presented by the ESIA, a more realistic scenario is that (see Figure 2):

1. During the first ten to fifteen years of the project, the first third of the concession will be heavily impacted by mining and infrastructure, while reforestation and rehabilitation lag behind:
 - a. Noise, traffic, vibrations, and forest clearance will drive wildlife from the area. If wildlife populations in the adjacent areas are more or less at carrying capacity, these animals may not succeed in relocating.
2. When the project moves to the second phase of development, rehabilitation will be under way in the first area but limited in terms of recovery:
 - a. There will be large open areas with a hot, dry microclimate. Only some of this area will be replanted, mostly with quick-growing *Cecropia*.
 - b. Due to disturbance of the underground aquifer, the area will “dry up sooner after the rainy season finishes and stay drier for longer” (Maest 2009:13).
 - c. There is the potential for “very localized” toxicological impacts from bauxite leachate discharge (Maest 2009:14).
3. When the second phase of mining is complete, rehabilitation in the first third of the concession will still be in process. The rate at which animals will repopulate the first third of the concession is unclear. At this point, two-thirds of the 2,800 km²

concession will have been impacted, even though only 3% of the surface area will have been mined.

4. Once mining in the final third of the concession is complete, the first area will have had a recovery period of 35-50 years. At this point, we will have a better understanding of the long-term recovery rate after bauxite mining (which in East Suriname has been very limited). However, two-thirds of the concession will remain in various stages of rehabilitation for several more decades.
5. The Bakhuis concession will undergo varying degrees of disturbance and recovery over a period of at least 75 years. Even under optimal conditions, between one-third and two-thirds of the project will have limited biota during the entire 50 years of the project's operation.
6. These predictions do not take into account additional impacts from legal and illegal logging operations facilitated by the cutting of new roads into the Bakhuis concession, or mining for kaolin or other materials, all of which will delay forest recovery in the concession area. Opening up the area will also provide increased access to commercial hunters. The most conservative estimate for rehabilitation and recovery of the environment at Bakhuis is that it will not occur at all.

Figure 2: Mining Envelopes in the Bakhuis Concession



Source: SRK ESIA 2008 Figure 5-5

6.1 Impacts on Hunting, Fishing, and Collection of Non-Timber Forest Products¹³

It is difficult to specify the cumulative impacts on hunting, fishing, and the collection of non-timber forest products of the proposed Bakhuis mining project for the Indigenous peoples living on the Corantijn River. They have already been deprived of access to the Bakhuis area for the past five years, and if they project goes forward, they will be deprived of these resources for at least fifty years, and perhaps indefinitely.

But mining in the Bakhuis mountains will also have a variety of impacts on the surrounding region that the SRK ESIA (2008) fails to address in a cumulative fashion.

First, there may be impacts on the major river systems themselves (see section 5.0). On the Corantijn River, dredging and heavy river traffic will reduce river use below the loading zone for bauxite. There may also be significant effects on the network of small creeks, feeder streams, and adjacent flooded areas. These effects may include both localized toxicological impacts (Maest 2009:14) and more widespread problems caused by increased turbidity. These harm fish populations, including the ability of some species to reproduce. The areas closest to the Corantijn River communities are already experiencing declining fish populations. Over the long run, restricting their access to the Bakhuis concession area will put additional pressure on fish populations in the other areas where the Lokono and Trio catch fish. The SRK ESIA (2008) fails to factor in the impacts of increased poaching, logging, and mining on the local watersheds, and their impact on fish populations, which can be substantial.

The Indigenous Peoples of Guyana also depend on the Corantijn River for fish.



Second, in addition to the direct impacts on the Bakhuis concession, and the likely impacts along the corridor between Apoera Plan and the concession area, there may also be long-term impacts on regional faunal populations. Although the SRK ESIA (2008) does not consider the possibility, the animal populations which migrate from the more heavily trafficked areas of the concession may not find suitable environments to live. As the Bakhuis area is progressively

¹³ Non-timber forest products (NTFP) include “all biological materials, other than timber, which are extracted from forests for human use.” The Lokono and Trio make use of a wide of array of forest materials, including vegetables, honey, medicines, poisons, fruits, nuts, seeds, tubers, bulbs, rhizomes, spices, flavors, hooks, pins, needles, adornments, recreational materials, fuels, oils, greases, waxes, glues and resins, exudates, essences, cleaners, fibers and fabrics, ropes, twine, thatch, bamboo piping and poles, etc. (Robert Goodland, personal communication, July 27, 2009).

exploited, this may result in locally specific as well as regional population declines. This may be exacerbated by the area becoming drier for longer periods of time (Maest 2009:13). It will certainly be exacerbated by other logging and mining projects, both legal and illegal, in the area. Professional hunters and other migrants to the area (especially those who are otherwise unemployed) will also have negative impacts on local animal populations. (Effective sanctions will have to be designed and enforced to prevent Bakhuis employees from hunting and fishing in the area, compounding the problem). Of particular concern is that any kind of “re-stocking” or “replenishing” effect that the fauna in the Bakhuis area might currently have on adjacent areas would be compromised by the mining project. In other words, whatever contribution this large area might make to the regional stability of animal populations will be eliminated by the Bakhuis project.

Third, there are some non-timber forest products only available in the Bakhuis concession. However, the indirect impacts from the Bakhuis project, including population growth in Apoera Plan, especially migrants who will not follow Indigenous rules about forest use, and the spread of legal and illegal logging and mining in the area closest to Apoera, and between Apoera and the mining concession, will have the effect of gradually restricting and eventually eliminating local access to non-timber forest products.

Fourth, although the SRK ESIA (2008: 7-39; 10-27, 28; 13-12) briefly mentions global warming, it only evaluates the potential contribution of the proposed Bakhuis project to global warming. It fails to consider how global warming may affect local flora and fauna, and what kind of synergistic effects might occur. Such impacts are already being reported elsewhere in the Amazon basin (Rosenthal, 2009), including the decimation of local fish stocks.

Finally, the SK ESIA (2008) does not evaluate the impacts of the Kabalebo hydroelectric project if the government of Suriname pursues an integrated aluminum industry in West Suriname. The impacts from that project on the Kabalebo and Corantijn rivers would be tremendous, exacerbating the problems described above.

7.0 Other Impacts

7.1 Population Increase in Apoera Plan

Apoera Plan is a modern township built in the 1970s as part of the West Suriname Development Plan, which was later abandoned. Many people will move here for jobs during the construction period.¹⁴ Others will come hoping for economic opportunities. Although the people from Apoera, Section, and Washabo want increased economic opportunities, they also expressed concerns about the problems that a large influx of people with different cultural “manners” and practices would have, especially on local women.

¹⁴ Participatory mapping carried out by VIDS in February 2005 puts the number of inhabitants in the three villages at 1023, although the actual figure may be higher.

However, no one from these communities realistically anticipates the changes to village life that a population boom would have. Buursink (2008:24) notes a litany of problems associated with the unemployed population that would gravitate to Apoera Plan: “alcohol and drug use will rise, giving rise to all sorts of anti-social behavior, petty theft, armed robbery, drunken brawls and murder, spouse and child abuse.” The very thing the communities seek to protect – good life in the village along the river – is vulnerable to destruction by the uncontrolled expansion of Apoera Plan.

Prior to its withdrawal from the project, BHP Billiton discussed several different plans for housing mine workers. However, in a relatively free and mobile society, the mining company will have no control over who moves to Apoera Plan, despite being the catalyst for population increase.

A proposal to increase monitoring of in-migration and cross-border migration from Guyana raises the issue of potential conflicts with the security apparatus of the Suriname state (SRK Consulting 2008a:11-16).

At the minimum, these problems suggest the need for regular social impact studies (SRK Consulting 2008a:10-31), although whether these studies should be carried out by the mining company or an independent body is an important question.

Serious consideration should be given to building a new town and industrial harbor further away from Apoera Plan, creating a buffer zone to protect the Indigenous villages from the worst effects of the population influx. Moving the industrial harbor downstream would also help protect the communities from pollution.

7.2 Trio Community in Sandlanding

There is a Trio community living at Sandlanding near Apoera, near the harbor where the mining company proposes to transfer bauxite ore to barges on the Corantijn River. These Trio are from the village of Wanapan upstream on the Corantijn River, and moved to Sandlanding to take advantage of educational opportunities and health care.¹⁵ After living at Sandlanding since 2003, they now claim the right to stay where they are. (This is similar to adverse possession or squatter's rights in Anglo-American property law).

The presence of the settlement of Lokono and Trio people at Sandlanding also poses a problem to the developer because of its proximity to the harbor, which will have to be greatly expanded to accommodate increased traffic. If the community at Sandlanding stays in its current location, the level of risk from construction and road, rail, and river traffic will be high. The area will be noisy and there is also a likelihood of airborne contamination from bauxite dust. In short, this heavily industrialized zone between Sandlanding to Apoera will be no place for a small Amerindian settlement. If the Trio and Lokono insist on staying in Sandlanding, they will end

¹⁵ On maps, the Trio village of Wanapan is listed as Wonotobo falls.

up living behind a series of barricades and fences, and will have to make dangerous road and railway crossings to enter and leave the settlement. There is already a precedent in Suriname for a similarly unfortunate stand-off, the Maroon village of Adjoemakondre, located in the center of the Moengo bauxite mines in West Suriname (Kambel and MacKay 1999:103). Particular care should be taken to prevent a similarly unhappy conclusion for the Lokono and Trio of Sandlanding.

The SRK ESIA claims that resettlement will not be necessary. In contrast, however, the Buursink (2008:56) environmental review suggests that “People along the Corantijn will be affected by the project in terms of land take or limitation of access to natural resources. Since the location and precise impacts of the project developments are not known at this time, it is recommended to prepare a Resettlement Policy Framework (RPF) for the Bakhuis bauxite process in order to understand the principles that will be followed should additional land or resources be taken in the future. For the Sandlanding and the Corantijn fishermen, a Resettlement Action Plan (RAP) will be needed.”

Rather than resettle the people living at Sandlanding, the project should consider the possibility of creating an industrial harbor and town site several kilometers downstream.

7.3 Dust from Bauxite Ore

A major health and environmental concern is dust from the bauxite ore. If the ore is transported in uncovered railway cars and river barges, bauxite dust will be a major pollutant. Apparently the company plans to use water to limit the dust, although this raises concerns about run-off at the transfer site. Wet ore weighs more and consequently costs more to transport so there will be financial pressure to transport dry bauxite. The ESIR does not address these issues, or the potential health impacts of inhaling bauxite dust over a fifty year period.

8.0 Indigenous Responses to Potential Environmental Impacts

8.1 Lack of Independent Information

To date, the communities have received the majority of their information about the project from BHP Billiton. Although some people have seen the ESIA, it is far too technical for anyone in the communities to read carefully. BHP Billiton and Suralco have distributed summary reports in “plain language” and held village meetings to discuss the ESIA with the communities

The communities need independent guidance on environmental impacts. There is also a need for additional community education to help them understand the broader impacts of the project. VIDS and The North-South Institute are to be commended for working with the Indigenous communities and producing a number of helpful independent reports (Goodland 2006; Weitzner 2007, 2008; VIDS 2008). Their sponsorship of this review is also an important step towards rectifying the lack of independent information about the mining project, especially when a non-

technical version of this report is produced and translated into the appropriate language(s).¹⁶ The contributors to this review should also be brought back to Suriname in due course to discuss their findings with the communities.

8.2 Out of Sight, Out of Mind

It is approximately 60 kilometers by road from Apoera plan to the closest part of the Bakhuis concession. Although the people of Apoera, Section, and Washabo have historically used land in the concession to hunt, fish, and gather non-timber forest products, the concession is still a considerable distance from the communities.¹⁷ The mechanisms through which pollution might eventually impact their immediate environment – whether pollution in the Corantijn River, or impacts on the broader ecosystem – are not entirely clear to the people living in the villages, and therefore the project may seem less threatening to them than it might otherwise be.

8.3 Cultural Differences

The Lokono make use of the forests in many ways. They plant swidden gardens. They cut down trees to build houses and canoes, and for firewood. They gather fruits, nuts, and medicinal plants. They greatly value their freedom to hunt, fish, and make use of the forests. These activities are central to their way of life. At present they cannot imagine a world in which they are unable to hunt and fish and make use of the forest as they please. Even though they are currently prevented from hunting and fishing in the Bakhuis concession, other hunting and fishing grounds are still accessible. However, there is already evidence of reduced fish populations and fewer animals in the areas closest to the three Lokono settlements (VIDS 2008:12).

At present the Lokono can still travel further to find the resources on which they depend, but their mobility and resource use has already been restricted. It is planned for Bakhuis to be off-limits for at least fifty years. Indigenous mobility across the Guyanese border might be constrained if the Suriname government decides to control migration. Their use of the Corantijn River for fishing will be constrained by the barges traveling on the river, and by plans for excluding community activity on part of the river due to safety concerns. Finally, access to the

¹⁶ Robert Goodland (2006:12) makes the following observations on the question of the appropriate language(s) to use in disseminating information about the project: "Creole Sranan Tongo is the most widespread language in Suriname, and is also the lingua franca between ethnic groups. It is not clear if environmental and social assessment documentation can be meaningfully translated into Sranan Tongo, which is not widely read. In West Suriname, Sranan and English are the most widely spoken. Although literacy is low, Dutch and English the most widely read. The main languages of the project area, Lokono (Arawak), and possibly Kali'na (Karinya/Carib), have all been written and codified. Lokono is used by the elders, but less so by the young. Warau (a.k.a. Guarao) is spoken by Warau and some Arawak and Karinya/Caribs but mainly outside Suriname, in Guyana and part of Venezuela. Kalina (aff. Kalinago) is spoken in the three Guianas and part of Brazil. It may have arisen from island Caribs. Trio language also is written; most Trio speak only Trio. Most elders have learned to read and write in Trio."

¹⁷ The maps of Indigenous use of the Bakhuis concession reference by the SRK ESIA (SRK Consulting 2008a:7-25, 7-26, 7-27) do not include the full extent of Indigenous use of these territories.

south would be severely restricted if the proposed hydroelectric project on the Kabalebo River is constructed.

It is not an impossibility that the Lokono may find themselves confined within a relatively limited territory, which would conflict with their need for sizeable areas of land to use in a low intensity, sustainable fashion and the value they place on freedom and mobility. I think it is difficult for the Lokono to conceptualize such circumstances. For example, in response to a question about the future, one of the Chiefs indicated that if hunting and fishing were no longer possible in the immediate vicinity of their villages, they would simply ask the company to provide them with transport to better hunting grounds.

The ESIA (SRK Consulting 2008a:11-7) incorrectly assumes that one of the expected consequences of acculturation is that the Lokono will become less interested in hunting and fishing. However, many Indigenous peoples continue their hunting and fishing practices even as they are increasingly incorporated into the cash economy. For example, there are well-documented cases of Inuit and other northern peoples using wages and royalties from natural resource exploitation to increase their ability to hunt using rifles, snowmobiles, two-way radios, etc. Moreover, they use transportation infrastructure to share food and extend their social networks even further than in the past (Sahlins 1999). Whether or not men the age of the Chiefs can conceive of a world without hunting and fishing, they are very clear that they would not want to live like that.

9.0 Development Matters

The Lokono communities would like enhanced economic opportunities and a higher standard of living. Everyone I spoke with wanted to increase economic opportunities for the Indigenous peoples living in the area.

As the ESIA points out, "Mixed livelihood strategies (hunting, fishing, agriculture) enable households in these communities to maintain food security and a basic standard of living. Such subsistence living is combined with commercial activities such as casual labour" (SRK Consulting 2008a:8-11).

They currently reside in simple houses built using a combination of locally-produced timber, store-bought lumber, cement blocks, and galvanized zinc roofs. Basic health care is available locally but they would like upgraded facilities. They have access to primary schools and several years ago secondary education became available, but only a limited number of students are able to participate. The communities would like to see another secondary school in the immediate area, vocational training, and other additional educational opportunities, including the opportunity for more of their youth to attend college.

9.1 Men and Development

In focus group discussions with men from Apoera, Section, and Washabo, although the men seemed to have a realistic assessment of how many (or few) people would actually find employment in the proposed mining project, they were optimistic that mine development would increase indirect economic opportunities for others. They identify the government refusal to recognize Indigenous land rights as the crucial economic obstacle to greater prosperity.

One of the developments they identified as desirable is a logging company of their own. Similarly, this author thought the communities would benefit from ownership of a company to extract sand, kaolin, and gravel, a concession that the government has granted to a non-Indigenous company which operates nearby. The operators of these projects would require training on how to set up the company and acquire the necessary capital, although the people I interviewed expressed their confidence in being able to carry out these tasks.

In general, the men from these communities hoped that opening up the area to economic development will have a trickle-down effect for them, although comparative research suggests that as the region opens up to economic development, people with greater social capital from other parts of the country will be better positioned to open and run businesses (Dove 1996; see also SRK Consulting 2008a:10-10).

Collecting fire wood



9.2 Women and Development

The Lokono women from Apoera, Section, and Washabo expressed concern about changes in gender roles resulting from men having greater access to cash earned through wages and small businesses. In the past, there was a complementarity to their gendered division of labor in which both men and women were needed to complete the tasks necessary for survival. For example, men would clear the forest for family farms, but women would plant, weed, and harvest them. Today, however, men have more access to money and women object to their resulting dependency on men.

The women with whom I spoke hope that the mine and the general expansion of the cash economy will provide them with new economic opportunities to overcome their recent economic dependency on men. They also want to move away from farming for cash crops, especially when dependent on manual labor to till the soil, which is largely women's work. They also asked for training courses and other programs to help them take advantage of the new opportunities. They feel that women will spend their money more wisely than men, especially in terms of helping their children to stay in school longer. One woman suggested that a micro-development fund be established from which women could borrow to start their own small businesses.

The focus group of women with whom I met was also concerned about the relationship between economic pressure and prostitution and its attendant ills, which are already problematic in the logging camps. This has been especially true for women with no training or schooling and no other economic opportunities (see also Weitzner 2008:14; 2007:53). The ESIR fails to recommend appropriate mitigation measures for prostitution.

More generally, Weitzner (2008:14) suggests that the SRK ESIA pays insufficient attention to the gendered consequences of the mining project:

During the exploration phase there were significant impacts on women whose spouses or sons left to work at Bakhuis for a two-week rotation period. These impacts included increased workloads stemming from childcare, Eldercare and pressure to engage in fishing as a source of food. Impacts on the gender roles in farming were also noted. Men mentioned increased pressure to provide for their families when they returned, which resulted in very little family time during their week at home. All this points to the importance of considering gender impacts in designing the mine site and employment rotations and conditions (particularly in dealing with potential family breakups, increased family violence etc.). For example, women will be even more affected by barging and may not be able to fish as close to home; they may also take their children along, which has safety implications for all. Furthermore, as women are primarily responsible for farming (their access to these plots may be severely affected by the current transportation routes) mitigation measures regarding this will need to be considered.

She concludes that: "The final ESIRs should examine more closely gender impacts of the mine related activities and recommend appropriate mitigation measures. These should consider not only terms of employment equity issues, but also the impact of the mine on the traditional roles and responsibilities of men and women in the Indigenous communities, access to traditional foods and livelihoods, and safety. There should further be in-depth assessment of issues related to prostitution (and resulting STDs), with mitigation measures and plans described" (Weitzner 2008:14).

9.3 *Young Men and Development*

In a focus group with young men, all of them spoke in supportive and positive terms about the mine, of more opportunities for training and job placement, and of the opportunity to continue their formal education beyond high school. They seemed less-informed than their parents about the potential negative impacts of the mine. But they stated that they want to preserve their culture and traditional way of living.

9.4 *The Local Resource Curse*

Economists and political scientists have shown that developing countries dependent on mining have slower growth rates than their peers, a condition known as the *resource curse*. Investment in extractive industry typically contributes little in the way of multiplier effects on other sectors of the economy or the diversified growth stimulated by other forms of investment.

The macroeconomic problems caused by mining are well-known. However, the resource curse also causes microeconomic problems at the local level. Higher wages in the mining sector make other forms of wage labor less attractive, and may provide negative incentives for subsistence production, which is viewed as hard labor for relatively low returns in comparison the wages paid by mining companies. Dependency on resource rents, i.e., royalties, compensation payments, etc., may also provide negative incentives for subsistence production or unskilled labor. People living in mining towns may come to depend on relatives with wage-paying jobs. The attraction of marginally employed or unemployed relatives to the households of wage earners may inhibit their ability to save or invest in local businesses. These impacts are what I refer to as the local resource curse.

The SRK ESIA notes that “Young men and women who are employed may not develop traditional livelihood skills, leaving them particularly vulnerable in the event of job loss and after mine closure, when they will not have the capacity to revert to self reliance through traditional livelihoods” (SRK Consulting 2008a:10-16), however these impacts may in fact be more widespread. In other words, the growth of wage labor may lead to a decline in a range of traditional labor practices.

Increased involvement in the cash economy may also affect the local *masramani* labor system (VIDS 2008:5; see also SRK Consulting 2008a:10-16) used for such activities as clearing and weeding farm plots, although in similar circumstances, cash payments for people to take one's place in communal labor may be a way to redistribute earned income (see Gutiérrez Nájera 2008).

10.0 Other Affected Populations

The ESIR does not include Indigenous Guyanese communities even though the Corantijn River is used by populations on both sides of the river for hunting and fishing access. This includes the

Indigenous communities of Orealla and Siparuta, as well as the community of Corriverton (Weitzner 2008:120). There are also Guyanese populations living on the Suriname side of the border whose rights are not fully recognized by the Suriname government. The local communities do not want these Guyanese populations to participate in their consultation process because they think the Guyanese populations should have their own, separate consultation process. There are strong family ties between the communities on both sides of the border. Weitzner (2008:8) suggests that ignoring the Guyanese communities “who will share the costs and receive none of the direct benefits from the mine...” may result in conflict between the communities.

11.0 Mitigation Measures

The ESIA lists 56 mitigation measures (SRK Consulting 2008a:13-10, 11, 12, Table 13-1). As Ann Maest (2009:14) notes:

Investigation of the success of mine mitigation measures indicate that they are largely unsuccessful in preventing environmental impacts (Kuipers et al., 2006). Therefore, the performance of mitigation measures in the ESIR is likely severely overestimated. More conservative assumptions about the success of the mitigation measures should be used to estimate the severity of impacts from the proposed project.

Every chapter in the SRK ESIA includes a long list of mitigation measures that must be undertaken. Yet nowhere is there any indication which party will ensure that these measures are undertaken, that corners are not cut or shortcuts taken, etc. Is the mining company the appropriate body to ensure that mitigation measures are implemented? If the mitigation measures proposed in the ESIA are not as effective as predicted, how will new mitigation measures be designed and implemented? What if there are cost overruns at the mining project, or if costs have to be cut; how will changes to the mitigation measures be made? Should the company have sole authority to change the mitigation measures described in the ESIA, or should the government play a role in this process? What about changes that directly or indirectly affect the communities; should the communities have the right to be consulted and/or approve or reject changes to mitigation plans when it would affect them? There is a strong need for clearer definition of these processes and how they are operationalized.

Robert Goodland (2006:16) judges enforcement of mitigation measures to be one of the two most critical factors in the success or failure of the Bakhuis project: “If the impacts are minimized to acceptability by means of Indigenous participations, bonds, insurance, fines, third party monitoring and certification etc, then FPIC is more likely to be achieved, and the project will have achieved best practice.”

11.1 Monitoring and Feedback

The proposed mitigation measures in the SRK ESIA are insufficient by themselves. The company needs to establish regular monitoring of social and environmental impacts. Such monitoring must include institutional mechanisms for feedback, so that when a problem is discovered, changes to the existing system can be made (Kirsch 1995; Power 1994).

Which regulatory body is responsible for overseeing these monitoring processes and ensuring that there are substantial penalties for their violation? Which regulatory body is responsible for ensuring that there are prompt responses to complaints? What powers of enforcement will this regulatory body have?

If the government is the appropriate regulatory authority, what protections will be put in place to avoid a conflict of interest – i.e., the government as a potential shareholder and tax collector (see SRK Consulting 2008a:11-9) will have an interest in seeing the company maximize its profits, which may conflict with its duties and obligations as a shareholder?¹⁸ Or should an independent regulatory body be established to monitor not only the environmental impacts of the project but also the sociocultural impacts? How would this body be funded? To whom would it answer? What powers of enforcement would it have?

11.2 Traditional Knowledge and Monitoring

It is important to incorporate Traditional Knowledge (TK) into monitoring of impacts. Many Indigenous peoples, especially experienced hunters, fishers, and farmers, have extensive practical knowledge of their environment. They have detailed knowledge of the rivers and forests, and of the animals that inhabit them, and would be astute observers of changes from the mining project and associated developments. Their knowledge of local flora and fauna can exceed that of scientific experts; for example Transport ESIA notes that the number of terrestrial animal species identified by local sources in the transportation corridor between Bakhuis and Apoera was more than double that of a field survey (Weitzner 2008:127, n. 77 citing Transport ESIA, p. 6-35, 6.2.8.5).

Other mining projects, including the BHP Billiton diamond project in the NW Territories in Canada, have incorporated TK into their monitoring programs (Secretariat of the Convention on Biological Diversity 2004; Weitzner 2006).

¹⁸ In Paramaribo I met briefly with two representatives from NIMOS, an environmental agency established by the government of Suriname. Although NIMOS would like to increase its autonomy, they current receive their funding directly from and answer to the government. They were scheduled to be part of the large government review of the SRK ESIA, and in theory would have provided recommendations to the government on whether to hold public hearings about the project and whether or not to approve the project. Because of its current relationship to the government, however, NIMOS cannot be an independent monitor.

12.0 Compensation

Compensation is only mentioned three times in the SRK ESIA:

The negative social and economic consequences of involuntary resettlement should be mitigated through appropriate consultation with those affected and adequate compensation (SRK Consulting 2008a:3-17).

Finally, where other mitigation approaches are unachievable or ineffective, then compensation for loss, damage and disturbance might be appropriate for example in the event of relocation (SRK Consulting 2008a:4-10).

The MJV intends to negotiate an Impact Benefits Agreement (IBA) (or similar agreement) with affected communities, which could be regarded as a form of compensation and fulfilling some of the requirements of FPIC (SRK Consulting 2008a:8-11).¹⁹

This lacuna is telling, and is directly related to the discussion of Indigenous land rights above (Section 2.0). Because BHP Billiton does not recognize Indigenous land rights, they avoid responsibility for paying compensation for many of the mining project's impacts. BHP Billiton does not treat the Lokono Indigenous peoples as the landowners of the Bakhuis Mountains even though they claim ownership of the area. Consequently, BHP Billiton operates as though they do not require permission from the Indigenous peoples to mine at Bakhuis, nor do they need to pay them compensation for damage to the mining concession. Consequently, the ESIA ignores the value of the resources at Bakhuis to their Indigenous owners.

Buursink (2008:10) recommends that the mining project establish a trust fund based on 1% of the project's revenues for the communities adjacent to the mining project.

Weitzner (2008:23) makes a number of constructive suggestions regarding the provision of compensation to Indigenous peoples in West Suriname who will be affected by the Bakhuis bauxite project. These include: "financial equity provisions, such as Indigenous communities receiving royalties, profit shares, fixed cash amounts linked to specific events in the lifetime of a mine, or equity interest in the project, with possible representation of Indigenous members on the company's board of directors." She recommends the development of Impact Benefit Agreements (IBAs) that specify compensation payments to individuals who suffer losses caused by mining, such as hunters, farmers, etc. These IBAs should specify how to determine who is affected and the process for calculating compensation.

The IBAs should also include environmental protection measures, such as: "a list of anticipated impacts, specific measures to minimize the impact on wildlife and/or sites of economic/cultural importance; the establishment of an independent monitoring system/body; conditions for a security deposit to finance mine closure/rehabilitation. The agreement may also lay out the

¹⁹ Although Weitzner (2008:20) indicates that compensation is discussed in the "Draft Community Engagement Plan: West Suriname Communities."

environmental protection standards that are most acceptable to the communities, stated in very clear terms” (Weitzner 2008:23).

Building on comparative knowledge of IBAs for other mining projects, Weitzner (2008:23) also recommends the following provisions:

- Provisions to minimize negative social and cultural impacts of mining projects, such as: prohibition of access to Indigenous lands, hunting grounds and sacred sites by non-aboriginals; provisions for the development of social programs, such as counseling services to help Indigenous communities deal with stress, financial issues, and protection of vulnerable groups such as women and children; the development of community-based monitoring programmes, based on traditional knowledge, to monitor the social and cultural impacts of mining, including impacts on women; programs targeted to minimize tensions between Indigenous and non-Indigenous people through awareness-raising about the special rights of Indigenous Peoples.
- Establishment of an Implementation committee (also known as a coordination or management committee), that could comprise Indigenous community members, company officials and independent members that are jointly appointed. Some committees have been empowered to give financial incentives or penalties to companies who fail to comply.
- A dispute resolution mechanism.
- A term for review of the IBA (often 5 years).

I support these recommendations, although I wish to emphasize that the Indigenous communities need to be the final arbitrators of any such agreements. In order to participate fully in this process, however, they will need to have their own advisors and legal counsel.

13.0 Freedom and Development

When Amartya Sen famously redefined development in terms of freedom, he argued that political freedoms are required along with security, opportunity, and transparency to realize economic development (1999:38). Central to his perspective is the recognition that the goal of development is to enhance human freedom, including a people's ability to shape their own destiny. Sen's work also promotes the values and institutions of the liberal democratic state. However, Dipesh Chakrabarty has argued against the identification of the modern state with freedom, an identity achieved through projects of reform, progress, and development that may be coercive or violent (2004:44–45). Also at risk in development projects are other freedoms that may not be acknowledged or protected by liberal states (see Povinelli 2002).

The relationship between freedom and development is important for the Lokono and Trio

Indigenous peoples. They generally support the project in the Bakhuis Mountains because of the economic benefits they hope it will bring them, although they also express concerns about its social and environmental impacts. Their ability to consent to the project is compromised by Suriname's refusal to recognize Indigenous land rights, which contravenes its international obligations. Their lack of legal title to their land creates a double-bind: They must endorse the project if they wish to influence or benefit from its operation. The result is a coercive form of participation that bears little resemblance to the standard of free, prior, and informed consent. Central to Indigenous identity in Suriname are practices of hunting and fishing in the rain forest. The Lokono and Trio value their freedom of movement and are able to use the resources of other Indigenous peoples once they have gained their permission. Paul Riesman once described the importance the Fulani attach to independence, suggesting that the principle of freedom is "founded on the possibility of each person's entering into a direct relation with... nature without the mediation of another person or any social institution" (1998:257). Something similar might be said for the Lokono and Trio, who equate freedom with being able to leave the village on hunting and fishing trips to the rain forest, or to collect wood and nontimber forest products.

However, the Lokono have already observed a decline in certain fish species and game animals, and the mining project will certainly have further impacts on local wildlife. The mining concession was off-limits to local use during the exploration phase of the project. A proposed conservation area would not prohibit Indigenous hunting and fishing, but neither would it guarantee the Lokono and Trio future access to these lands. In response to a question about the potential impacts of the mine on the environment, one of the Indigenous leaders responded that if hunting and fishing were no longer possible in the vicinity of their villages, they would ask the mining company to provide them with transportation to better hunting and fishing grounds. It is difficult for them to imagine a world in which they would no longer have free access to the forest for the hunting and fishing so central to their livelihoods, contravening one of their strongest cultural values, yet the mining project may hasten its eventuality.

Specialized knowledge about the rain forest, including traditional medicines, is decreasing across generational lines, although the communities have begun to record this information in texts (Bureau VIDS 2008). More fundamentally, their underlying relationship to the forests and the animals that live there are also vulnerable to change. These interactions include making libations and direct invocations to the animals one hunts or the trees one cuts down as a way of asking permission, parallel to how one must ask the owners of the land before using their resources. There are also rules to guide interactions with animals and trees that favour conservation over accumulation. A sacred relationship connects these people to the landscape in ways that transcend economic value, including compensation.

Despite their ties to place, the Lokono have become enchanted by the prospect of economic development. They need money to pay for the education of their children, for clothes, and for many other activities, from hunting and fishing supplies, to building houses and boats. Their diets include rice and bread along with cassava and other farm crops. The Lokono have been part of the cash economy for many years, and many of them see the mining project as the best way to achieve their economic goals.

Although the men recognize that modern mining projects provide relatively few jobs, they hope the mine will have a trickle-down effect on the local economy. However, comparative evidence suggests that when economic opportunities arise, people with greater social capital will be better positioned to exploit them.

The primary economic concerns of the women in these communities are related to the ways in which gender roles have already been affected by the cash economy. In the past, there was a complementarity to their gender-based division of labour. For example, both men and women contributed labour to their family farms, with men clearing the forest and women planting, weeding, and harvesting the plots. In contrast, men now have greater control over financial resources and women object to their increasing dependence on them. The women hope the mining project will stimulate the local economy, creating opportunities for them to become more directly involved in the cash economy and independent of men. Finally, many of the youth support the mining project because of their desire for vocational training, job opportunities, and university education.

With the development of the mine, the region will become more densely populated. People will open businesses to provide supplies to the mine. The town will become a magnet for people seeking employment, many of whom will stay on even if they do not find jobs. Members of the Indigenous communities expressed concerns about the influence people with different cultural “manners” and practises will have on their lives, especially on local women. At present, outsiders tend to be assimilated into local modes of interaction, such as asking permission before using local resources, but this dynamic is likely to change along with regional demography. The very thing the Indigenous communities are trying to safeguard through new economic activity—good life in the villages—is vulnerable to elimination by an influx of outsiders.

In the wake of the global economic downturn, the primary developer has withdrawn from the bauxite project in West Suriname, although the government continues to search for an alternative corporate partner. The resulting hiatus provides the Lokono and Trio with an opportunity to consider whether the proposed mining project is compatible with their most important cultural values, including their freedom to hunt and fish in the rain forest, the kinds of relationships they have with the trees and animals with which they share the landscape, and the kinds of social relations they have among themselves. While they currently expect the development of the mine to provide them with new forms of economic freedom, it may also reduce other important freedoms associated with being Indigenous that are not recognized or protected by the state.

14.0 Conclusion

14.1 The Future of Apoera Plan

The SRK ESIA presents the following description of the future of Apoera Plan and the adjacent Indigenous villages:

A possible scenario is that the West Suriname *villages* will grow considerably and consolidate into a contiguous functional urban centre offering a typical range of services: secondary education and healthcare, many commercial activities, markets, regional and local administrative services, formalized utilities, comprehensive telecommunications connectivity, banking, tourism services, etc. Access is likely to improve and it is possible that a small commercial air service will complement the planned ferry connection to Nieuw Nickerie. The future *town* could become the gateway to the interior of West Suriname with more formalised links to Guyana. In response and to encourage further development, the Government of Suriname may choose to significantly improve road access to Paramaribo and/or Nieuw Nickerie, and to Guyana. The population may increase significantly partly as a result of natural population growth, but also through in-migration. This will bring many benefits but may also change the villages irreversibly as the traditional livelihoods of a fairly homogeneous population are replaced by a more mixed population accustomed to a market economy (SRK Consulting 2008a:11-7).

This tale of progress and modernization also has a dark side. Frontier towns are magnets for uncontrolled migration. High levels of unemployment are associated with crime, gambling, drug use, alcoholism, prostitution, and disease. The populations living in these communities may experience health problems ranging from STDs, epidemic diseases of crowding and poor sanitation, and the consequences of a shift to modern diets.

Improvements in transportation infrastructure will also attract legal and illegal logging and mining projects to the region. The SRK ESIA largely turns a blind eye to the “indirect problems” and “cumulative effects” of opening up the area between the Corantijn River and the Bakhuis Mountains to development. There is no reason to expect that these loggers and miners will follow the company road all the way to the Bakhuis Mountains when everything along the way will be fair game for plunder. In other words, it should be expected that the area surrounding Apoera Plan will be subject to intensive extractive activities. (Indeed, there are indications that the government of Suriname would like this to happen; that is to say, they hope by opening up the area it will become an engine for regional and national growth. Similarly, one can expect the mining company to favor resource extraction *outside* the boundaries of its concession rather than within, and therefore avoid any associated responsibility or liability for harm to people or the environment). Another problem is the rising pressure on their hunting and fishing grounds as outsiders enter the forests and travel on the rivers and creeks to hunt and fish. The Lokono already experience problems caused by the intrusion of outsiders onto their territories and especially object to the way the outsiders do not follow their unwritten rules not to catch or kill more than one needs and to protect young animals (VIDS 2008:13).

Finally, mining is regarded as a “boom and bust” industry for good reasons. BHP Billiton’s abrupt departure from Suriname in Fall 2008 certainly reinforces this observation. International

mining companies rarely accept responsibility for years of exploration impacts and unfulfilled promises. As global economic conditions and bauxite markets rise and fall, there is no way to guarantee that investors will not pull the plug again, and therefore it should be made clear that one has little security when investing in the surrounding infrastructure. Unfortunately, it is often those who have the least to begin with who are most affected by such economic shifts.

14.2 If a Tree Falls in the Forest...

The story line that the SRK ESIA promotes for the Bakhuis project may be summed up by the familiar rhetorical question: "If a tree falls in the forest, would anyone hear?"

In other words, the SRK ESIA presents data to suggest that the mining project will have few significant impacts. The ESIA explicitly states that "the biophysical impacts of mining will be largely confined to the concession area" (SRK Consulting 2008a:11-7). Moreover, "given the remoteness of Bakhuis . . . the economic cost of any potential negative impact on ecological function in the concession area is considered minimal" (SRK Consulting 2008a:10-29). In other words, because the Bakhuis Mountains currently have no economic value, the mining project cannot harm anything of value.²⁰ BHP Billiton and Suralco propose elaborate measures to limit erosion and promote rehabilitation even though these methods are untested in Suriname, let alone in the Bakhuis Mountains, and these companies have a very poor track record for such activities, even for recent projects in Suriname.

The SRK ESIA emphasizes that the actual footprint of the project will only be 140 km², out of which a "maximum of 58 km² of the concession area will be cleared at any time" (SRK Consulting 2008a:10-28). But there are a number of ways in which the project may affect a much larger area. First, there are unanswered questions about erosion into the catchment areas of four of Suriname's largest rivers, and potential impacts downstream on Trio, Lokono, and Maroon communities. There are also potential toxic effects from heavy metals in the areas surrounding the bauxite removal zones (Maest 2009:14). In addition, there are largely unknown impacts on local wildlife populations over the entire 2,800 km² concession area. And finally, the project, and in particular the development of transportation infrastructure linking Apoera Plan to the Bakhuis Mountains, and Apoera Plan to the coastal plain, will probably also instigate a cascade of other development effects, some of which can be expected to be quite destructive (see Kirsch 2009).

An adequate assessment of the Bakhuis project must take the larger set of potential impacts into account.

²⁰ As Roy A. Rappaport (1993:299) has argued, such logic "reduces all qualitative distinctions to mere quantitative differences, a logic that, as it were, attempts to 'bottom line' the world. This logic is especially destructive of ecological systems. It is in accordance with it to rip the top off a complex system like West Virginia to get at one simple substance, coal, particularly when environmental damage can be ignored as an 'externality.'"

14.3 An Intercultural Perspective

The ESIA makes several comments about acculturation, suggesting that “socio-cultural change is an inevitable process and the local communities are already in a phase of accelerated transition towards development and a ‘Western’ lifestyle” (SRK Consulting 2008a:11-7). It also suggests that the communities are divided over the prospects of change along generational lines, in which the older generation conservatively protects tradition whereas the younger generation is progressively in favor of change.

Rather than use the vocabulary of acculturation, and speak of change as a recent development, it is important to recognize that the Lokono Indigenous peoples living along the Corantijn River have interacted with Europeans for more than three centuries (de Jong 2007). The first Christian missionaries arrived on the Corantijn River in 1757 (de Jong 2007), and today most, if not all, of the Lokono are Christian. The first language of many of the adults is Dutch or Sranan Tongo, not Lokono. In such contexts, it is important to think about the long history of interactions between Indigenous peoples and others. Francesca Merlan (1998) argues that we need to think in terms of intercultural relationships in which Indigenous identities are shaped through interactive processes, rather than in terms of acculturation or change which can be seen as giving up on their traditional identities.

Moreover, in conversations with young and old alike, I heard both the desire for higher standards of living and economic opportunities in addition to concerns about protecting their culture and identity. These are not opposed points of view and they are promoted by the same individuals. They do not map onto a putative generation gap. In other words, it is a mistake to think about certain kinds of economic change as being inimical to Amerindian identity, or that people who want development opportunities do not also respect and value their own heritage and identity as Amerindians.

14.4 Track Records and New Promises

BHP Billiton's corporate policies on social and environmental impacts give the appearance that the company is committed to higher standards than past practice would indicate. They emphasized repeatedly during the planning phase for the Bakhuis project that they would follow international best practice including World Bank (IFC) social and environmental performance standards through the ESIA and subsequent mining and mine closure.

But BHP Billiton's track record in Suriname is far from impressive. As recently as 2000, BHP Billiton and Suralco were mining bauxite in East Suriname without the benefit of an ESIA.²¹ The Wane Hills bauxite mine was located inside the Wane Creek Nature Reserve, land that was historically owned by the Indigenous Peoples of the Lower Marowijne (CLIM 2006). The wide

²¹ Before BHP Billiton and Suralco began to mine in Wane Hills, a baseline study was conducted by the University of Suriname. This study recommended that a complete project ESIA, a comprehensive rehabilitation and restoration plan, and an environmental monitoring plan (University of Suriname 1996).

roads that enter the Wane Hills bauxite mine concession have led to a boom in resource development, opening up the Wane Creek Nature Reserve to legal and illegal logging, as well as mining for sand, gravel, and kaolin. The rehabilitation program at Wane Hills has operated for more than a decade under very similar environmental conditions to the Bakhuis Mountains project, but has failed to show very promising results. Only a few small trees grow in large areas of red earth that are hot and dry, very unlike the cool rain forest of the surrounding areas.

BHP Billiton and Suralco have also refused to make public any documents concerning the environmental impacts of the Wane Hill project (Ian Wood, Vice President for Sustainable Development and Community Relations, BHP Billiton, 20 February, 2009).

And the companies appeared to be on a very similar path towards reckless disregard for international standards during the initial exploration phase at Bakhuis, for which they also failed to conduct an ESIA (see 1.2). Only pressure from the Indigenous communities, VIDS, The North-South Institute, and The Forest Peoples Programme forced BHP Billiton and Suralco to change their policies.

Yet the SRK ESIA fails to address the track record of BHP Billiton and Suralco in Suriname. This would seem to be critical information in evaluating any new project they propose. The reason for this strategic omission is unclear.

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Drill line at Bakhuis

CHAPTER 3: COMMENTS ON ENVIRONMENTAL ASPECTS OF THE BAKHUIS DRAFT ENVIRONMENTAL AND SOCIAL IMPACT REPORT (DESIR)

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1.0 Introduction

This review provides comments on the environmental aspects of the Bakhuis Draft Environmental and Social Impact Report (DESIR) (SRK Consulting, 2008). The primary chapters of the DESIR addressed in the review include Chapter 5 - Project Description, Chapter 6 - Biophysical Baseline, and Chapter 9 - Biophysical Impact Assessment. Although terrestrial and biological resource impacts are discussed in the review, the main focus of the review is water resource impacts.

Comments on the proposed mining operation and the sources of impacts to the environment are discussed in Section 2 of this review. Section 3 addresses the environmental baseline evaluation, and Section 4 comments on the predicted environmental impact of the project as proposed in the DESIR. The consideration of alternatives to mining approaches is discussed in Section 5. Conclusions and recommendations are provided in Section 6, and references are included in Section 7.

2.0 Mining Operation and Sources of Impacts to the Environment

The bauxite mining process is large in geographic extent and inherently destructive of terrestrial, water, and biological resources. Chapter 5 of the DESIR describes the bauxite mining process. Chapter 9 of the DESIR describes sources of impact to water resources, freshwater ecosystems, and other natural resources, as well as mitigation measures and their effectiveness.

The proposed method for bauxite mining in the Bakhuis concession is open pit panel mining combined with adapted contour mining. The major steps in the mining process are:

- site preparation (harvest timber, clear vegetation, overburden stripping, and installation of drainage and sediment control structures)
- ore extraction (drilling and blasting of hard bauxite caps and excavation of bauxite); and
- site remediation (backfilling of voids, reprofiling, soil preparation, revegetation).

The bauxite ore in the Bakhuis concession is located on plateaus that rise ~150 to 250 meters above the forest floor. In order to extract bauxite ore, blasting of the plateau areas is proposed. Blasting of bauxite ore will destroy terrestrial habitat, increase erosion, and increase concentrations of nitrate and ammonia in ore stockpiles and ultimately in groundwater and surface water. A photograph of blasting of bauxite ore is shown in Figure 1.

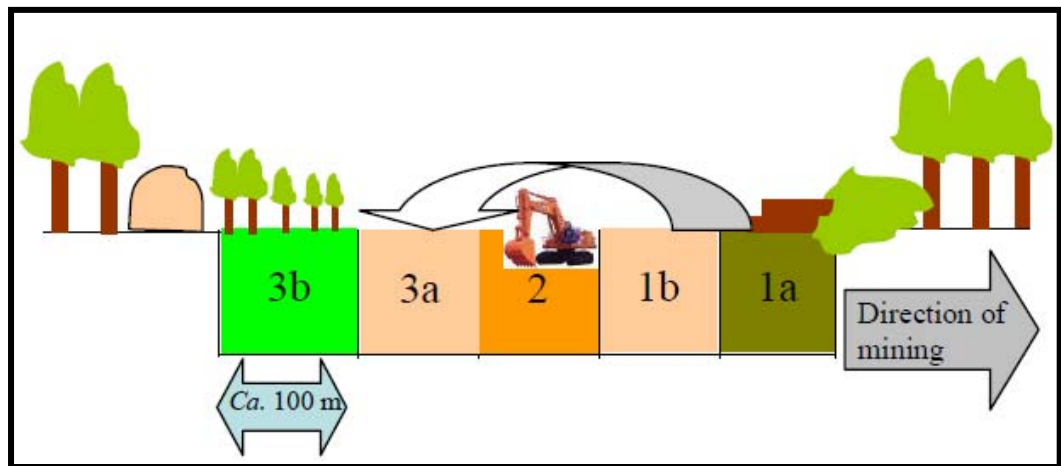
Figure 1: Blasting of Bauxite Ore



Source: DESIR, Figure 5-12, p. 5-22.

After deforestation and blasting, the ore is excavated using bulldozers, as shown in Figure 2. However, because the bauxite ore is located on plateaus, there will be substantially more topographic relief than suggested in Figure 2. According to the DESIR, a 10-meter wide rim of bauxite will be left in place around the perimeter of most of the mined plateaus (p. 5-20). However, if the plateaus are small (size not defined in the DESIR), an “alternative approach” may be necessary, implying that the entire plateau will be removed in some circumstances. Leaving a perimeter rim in place could minimize runoff and erosion, and this practice should be implemented on all plateaus regardless of size.

Figure 2: Mining void in profile. Mining includes deforestation (1a), overburden removal (1b), ore extraction (2), and site remediation (backfilling – 3a, and revegetation – 3b)



Source: DESIR, Figure 5-7, p. 5-16.

One of the most significant adverse effects to water resources from bauxite mining is increased sediment in surface runoff and streams (DESIR, Chapter 9). The development of the mining project includes measures to minimize sediment-laden runoff, as shown in Figure 3. However, discharge from sediment control structures will still contain substantial amounts of suspended sediment (as shown in Figure 3, right) that will be directed to the forest and streams in the Bakhuis concession and that will cause a direct adverse impact to the clarity of streams year-round.

Figure 3: Sediment control structure for a bauxite mine (MRN) in Brazil. Water energy dissipation tank (left) and discharge point (right)



Source: DESIR, Figure 5-11, p. 5-21.

Clear water is very important for ecological functioning in the Bakhuis area. The waters have low turbidity and suspended solids concentrations, especially during the dry season. Many fish use visual signals to find and select mates, and predators rely on sight to find prey. The fish in the local streams are highly colored and have false eye spots somewhere on their bodies (DESIR, p. 6-54). Disruption of the natural cycle of stream turbidity in the area would negatively effect the reproductive success and health of aquatic biota. Although turbidity naturally increases during the rainy seasons, streams in the Bakhuis area are not expected to tolerate long periods (longer than the wet season) of increased sediment content (DESIR, p. 6-54).

Chapter 9 lists the sources of direct impacts to water resources and aquatic ecosystems from bauxite mining at Bakhuis (p. 9-32 and 9-54, respectively). Sources of direct impacts to water resources include:

- Stripping of vegetation prior to mining, exposing the land surface.
- Removal of overburden and bauxite.
- Reprofiling and rehabilitation of mined areas.
- Construction of roads, bridges and mine infrastructure, especially near watercourses.
- (Temporary) detention of water in mining voids.
- Water abstraction from rivers and groundwater.

- Discharge of stormwater and effluent into watercourses.
- Diversions of (small) watercourses around facilities.
- Disposal of (solid) domestic waste.
- Transport, storage, handling and disposal of hazardous materials such as fuel, grease, paint, chemicals; pesticides; fertilizers etc.
- Geochemical reactions of either the exposed ore body or stockpiled material to generate either acid rock drainage or leachate.
- Increased erosion leading to sedimentation of rivers and creeks.

Sources of direct impacts to the Bakhuis freshwater ecosystems include:

- Removal of forest for mining, road corridors, and development of ancillary infrastructure in the concession, leading to altered run-off patterns and increased erosion from cleared areas.
- Mobilization of sediment from cleared areas, entering aquatic systems.
- Construction of structures in watercourses, including stream crossings (culverts and causeways) on access and haul roads, water impoundments, tailings and sediment control dams, flood mitigation structures, water uptake structures.
- Changes in hydrological regime due to abstraction of water.
- Change in hydrological patterns of small streams originating on the plateaus due to removal of the bauxite cap and destruction of perched aquifer.
- Generation of dust during construction (site clearing, transport) and operation (blasting, primary crushing, transport).
- Contamination of soil and water by chemical pollution.
- Creation of access into the concession area and increased connectivity to other areas.
- Rehabilitation and revegetation during closure.

The impact of these sources to the environment will be discussed in Chapter 4 of the review.

3.0 Environmental Baseline

Impacts to the environment must be discussed in the context of baseline conditions, which for purposes of this review are the environmental conditions that exist in the absence of mining activity, including exploration activities. Chapter 6 of the DESIR discussed the biophysical baseline for the Bakhuis area.

3.1 General Findings

As noted in the DESIR, the large size of the study area makes it difficult to conduct an adequate environmental baseline evaluation (DESIR, p. 6-1). Baseline studies were generally conducted over a 12-month period with monthly sampling, and were conducted over two wet and two dry seasons (DESIR, p. 6-4). A year of sampling over a large area with only monthly sampling will not elucidate important changes in water quality that occur during episodic events, especially early in storm events. These changes associated with the rising limb of the hydrograph occur over substantially shorter periods of time than a month and can result in the highest concentrations of suspended and dissolved aluminum and other metals (see, e.g., Maest et al.,

2004; Baldigo et al., 1997; Hendershot et al., 1986; Hooper and Shoemaker, 1985). Additional water quality and sediment sampling should be conducted before mining begins, especially early in the wet periods during the rising limbs of the hydrographs. This type of sampling is even more important after mining begins.

3.2 Geology and Landforms

The land surface in the Bakhuis concession is cut by many rivers and streams, which have created topographically isolated, but ecologically linked, plateaus. The presence of the plateaus increases the ecological diversity in the Bakhuis Concession because they add structural complexity (US EPA, 1999; MacArthur and MacArthur, 1961). Most of the bauxite deposits occur close to the surface of these plateaus and have an average thickness of 3 to 5 meters with only a 1-meter average thickness of overburden. The bauxite deposits are more prevalent and of higher quality in the northeastern part of the concession and become less prevalent and of lower quality toward the south. The bauxite plateaus are smaller than those in other parts of Suriname (DESIR, p. 6-13). In addition to the bauxite, there are also iron, nickel, copper, and phosphate deposits that could be developed in the future (DESIR, p. 6-13) and that would contribute heavy metals and phosphate to the drainages if mined.

3.3 Geochemical Testing and Contaminants of Concern

Some geochemical testing of the rock in the concession was conducted, but only very limited information was supplied on the results and the nature of the testing in the DESIR and the appendices available on the SRK website.¹ In general for mining concessions, geochemical testing is performed to identify contaminants of concern, and to identify deposits and overburden that would potentially produce acid or leach metals and other contaminants to the environment when mined (Maest et al., 2005). Therefore, the results of geochemical testing should be included in detail in the DESIR and its appendices and should be readily available to the public for review. Chapter 5 of the DESIR (p. 5-4) indicates that cores from the exploration drill holes and trenches were analyzed for their "geochemical characteristics," but no reference is provided to a study or an appendix in the DESIR. The results of the geochemical testing may be available in Volume II of the DESIR, but that was not available in the public documents on the SRK website.

The limited summary of the geochemical testing that is presented in the DESIR suggests that limited leaching of the bauxite ore and stockpiles is expected because the rocks are highly weathered, but that copper, zinc, iron, lead, manganese, mercury, cadmium, silver, and aluminum could be leached from the mined materials and possibly cause toxicological impacts (DESIR, p. 9-39, 9-40, 9-53). The release of these contaminants is expected in the "long term," if the system becomes more acidic from sulfate dissolution from the ore body (DESIR, p. 9-40), but no estimate of the timeframe for possible release is provided in the DESIR. Table 9-28 (p. 9-39 of the DESIR) lists the contaminants of concern and their sources:

¹ <http://www.srk.co.za/publicdocuments.asp?projID=2025>

- Increased salinity (erosion, stockpiles)
- Nitrates and ammonia (blasting of ore)
- Acidity (oxidation of sulfides in ore and mine workings)
- Heavy metals (from ore, waste rock, mine residues)
- Hydrocarbons (petroleum produces from mine vehicles and equipment)
- Suspended solids/increased sedimentation (deforestation, overburden stripping, ore excavation).

The toxicity of contaminants of concern reviewed in the DESIR only addressed metals associated with leaching of local mineralization rather than hydrocarbons and other process reagents because best mining practices should deal with these potential contaminants (DESIR, p. 9-52). This conclusion is unwarranted because even with best practices, spills and leaks of mine-related reagents and wastes will occur.

3.4 Water Resources

A two-year monitoring program was conducted for water resources as part of the DESIR (p. 6-8). The program included stream water quality and flow measurements (frequency not noted), groundwater quality and level measurements and pump testing (for aquifer characteristics), and sediment grain size and chemistry analyses. No local historical water resource information was available, but regional historical rainfall data from 1960 to 1986 were available, and Nickerie River water level and flow data were available from 1975 to 1985 (DESIR, p. 6-8). The concession area receives an annual average of 2.2 meters of rainfall and has two wet and two dry seasons annually (DESIR, p. 6-8). SRK Consulting created a monthly rainfall/runoff model for the Nickerie drainage basin using the historical and recent flow data, and extrapolated the results to other drainages in the concession (DESIR, p. 6-8). However, no stream sampling or modeling was conducted for Kabelebo basin, the second largest drainage basin in the concession (DESIR, p. 6-28). The lack of recent streamflow data in any of the drainages is a major gap in baseline information, and monitoring of flows in small to large streams should be conducted over both rainy and dry seasons before a final ESIR is completed.

Groundwater

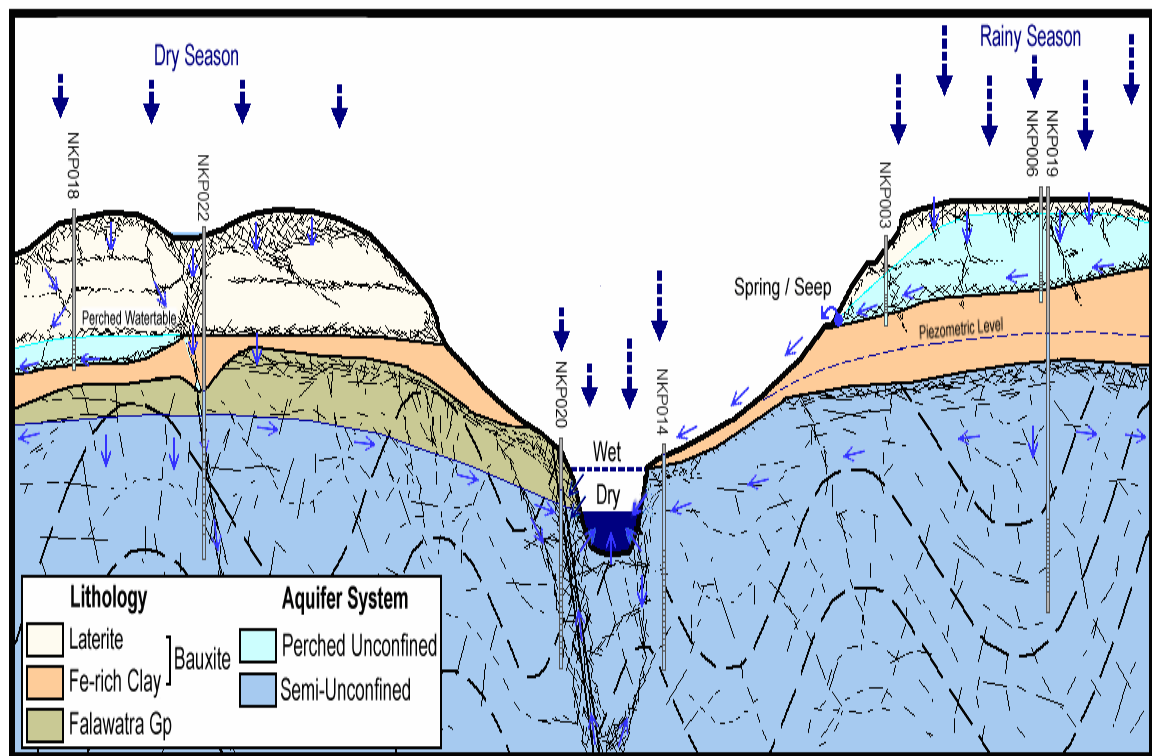
The groundwater aquifers in the Bakhuis concession include a shallow unconfined “perched” aquifer in the laterite and bauxite deposits on the plateaus, a clay layer under the shallow aquifer, and a lower semi-unconfined fractured rock aquifer (DESIR, p. 6-28). The shallow unconfined aquifer has generally less than 15 but up to 30 meters of saturated thickness, which is fairly thick for a “perched” aquifer. The continuity of the clay layer is unproven, and it is unlikely that an impermeable clay layer underlies all the bauxite caps. Springs issue from the base of the caps and help to recharge the lower aquifer and the streams (DESIR, p. 6-28), which further suggests that the clay layer is not continuous across the concession.

The conceptual model of the aquifer system is shown in Figure 4. The dry season conceptual model is shown on the left side of the figure, and the rainy season conceptual model is shown on the right. During the rainy seasons, the bauxite caps are almost fully saturated (the groundwater

table is within 5 feet of the ground surface). The shallow aquifer is a major source of water for small creeks during the dry season (DESIR, p. 6-29). This means that the shallow aquifer acts like a sponge that takes up water during the rainy season and slowly releases water to streams during the dry season. This type of hydrogeologic behavior suggests that excavating plateaus during bauxite mining will noticeably reduce water levels in streams and the lower aquifer (discussed further in Chapter 4). During the rainy season, the shallow aquifer produces springs from hillsides/plateaus, and this water seeps into the deeper aquifer.

The DESIR states that the permeability and transmissivity of the shallow aquifer is low (DESIR, p. 6-28), but the fact that shallow groundwater quality has similar chemical characteristics to rainwater suggests that infiltrated water is moving quickly through the shallow aquifer. The transmissivity of the lower aquifer is reported to be lower than the shallow aquifer, and deeper groundwater quality is more variable and includes more saline water in deeper parts of the lower aquifer. Baseline groundwater quality meets most international drinking water standards but has occasional spikes in fluoride, iron, manganese, aluminum, nickel, chromium, and lead.

Figure 4: SRK Consulting's conceptual model of perched and deeper aquifers at the Bakhuis concession. The dry season conceptualization is shown on the left, and the rainy season conceptual model is shown on the right of the figure.



Source: DESIR, Figure 6-13, p. 6-28.

Surface Water and Sediment

Surface water in the Bakhuis concession is generally a sodium-bicarbonate type water with low turbidity with variable total suspended solids (TSS). The fact that the waters have low turbidity but variable TSS suggests that organic carbon contributes to turbidity (DESIR, p. 6-28). The major rivers are dominated by precipitation rather than groundwater flow, but the smaller tributaries adjacent to the plateaus may be fed almost entirely by groundwater from the shallow aquifer (DESIR, p. 6-62). Stream flow is highly seasonal, and the highest variability in flow occurs at the start of the long wet season (April/May) when flows begin to increase (DESIR, p. 6-62). The two major drainages in the concession are the Nickerie (54% of concession area) and the Kabelebo (27% of concession area). The smaller drainages are the Left Adampada, the Falawatra, and the Mozes Creek basins (DESIR, p. 6-26). The Mozes Creek basin contains the current base camp and is proposed to contain the majority of the mine facilities.

A summary of the water quality in the Kabelebo, Nickerie, and Mozes Creek drainages is contained in Appendix A of this report. Trigger and actions levels have been established as data quality objectives or guidelines (rather than requirements) as part of the DESIR are also included in the Appendix A tables of this review. If the trigger value is exceeded by the median of all the data, further investigation must occur. If the median value exceeds the action level, immediate action may be required to investigate and possibly stop the source of the elevated parameter (DESIR, Appendix A, p. 1). A complex methodology for setting trigger and action levels is discussed in Appendix A of the DESIR (p. 6) and is summarized herein:

- Baseline values below standards: For a parameter of concern, the action level was set at the most stringent standard, and the trigger level was set at the 80th percentile of the baseline data.
- Baseline values below detection:
 - o If it is a parameter of concern and the detection and the detection limit is below the standards, the action level was set at the most stringent standard and the trigger level was set at the detection limit.
 - o If the geochemistry test work did not show the parameter to be a concern and the detection limit was below the standards, no trigger or action level was set (antimony is an example).
 - o If the detection limit was higher than standards, the most stringent standard was used as the trigger level and no action value was set.
- Baseline values above standards: the trigger value was set at the 80th percentile of the unfiltered data, and the action value was set at the 99th percentile of the baseline data for unfiltered samples, plus two standard deviations (DESIR, Appendix A, p. 8).

Comments on the baseline data set and the recommended trigger and action levels include:

- The geochemical test work was not included in the publicly available information and therefore was not reviewed. Because trigger and action levels are dependent on the results of the test work (for establishing parameters of concern), it is crucial that the information be included in the body of the final ESIR. According to Annexure 2 of Appendix A of the DESIR, the only mining-related parameters of concern are chloride,

chromium, dissolved oxygen, lead, nitrate/nitrite, selenium, zinc, total dissolved solids, turbidity, phosphate, and copper. Aluminum, which is toxic to aquatic life and would increase greatly from mining, was not set as a parameter of concern because it is naturally elevated.

- Aluminum: trigger and action levels were set at values well above the highest measured dissolved concentrations. Therefore, if dissolved concentrations doubled or tripled, no action would be taken. Separate and lower trigger and action levels should be set for dissolved aluminum.
- Arsenic, cadmium, lead, mercury, molybdenum, nickel, and selenium were not measured in a number of the drainages (either in unfiltered or filtered samples or both). Three of the seven were identified as parameters of concern (DESIR, Appendix A, Annexure 2), and all of these parameters should have been measured in filtered and unfiltered samples. This important omission should be addressed in the final ESIR.
- No action level was set for arsenic, cadmium, chromium, dissolved oxygen, lead, mercury, nitrite, selenium, copper, total cyanide, or turbidity. All of these parameters are listed as a parameter of concern to the public or leached from mining activity (see Annexure 2, Appendix A), and action levels should be set.

Stream sediments are well sorted and predominantly quartz sand with little fine clay and an elevated organic carbon content (DESIR, p. 6-29). The lack of fines in the streams implies that there is not much erosion, or that the fines have been washed downstream. More baseline information should be collected on the distribution of sediment grain size during the wet and dry seasons.

3.5 Terrestrial Resources

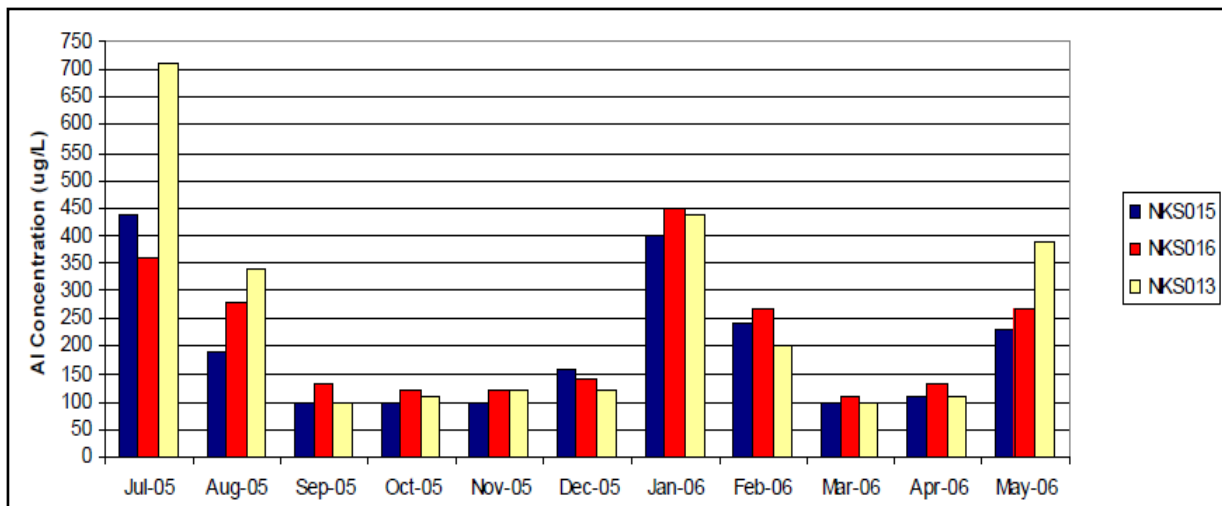
Terrestrial resources reviewed in this report include terrestrial vegetation and soils. Three field studies on terrestrial vegetation were started in September 2005 and included 50 sampling sites (DESIR, p. 6-9). A detailed survey was not possible because of the large size of the concession and the length of the ESIR study period (DESIR, p. 6-9). A list of terrestrial plants was created using information from the field studies and satellite images of the whole concession and low altitude stereoscopic aerial photos from 1956. (DESIR, p. 6-9). Many types of forests were identified, including very tall trees on plateaus and tall mature mesic forests on well-drained plateaus (DESIR, p. 6-34). The Bakhuis concession is largely undisturbed and unaffected by human activities, and 91% of the country is covered in primary rainforest (DESIR, p. 6-2). The mature Neotropical forest is assumed to be high in biodiversity (DESIR, p. 6-2). Mining would largely eliminate the tall tree forests on plateaus.

Soils on the plateaus are orange to red with lateritic gravel or laterite/bauxite caps. The soils in the concession are generally acidic to very acidic, but soils on hills and plateaus are well drained and have moderate to good rooting capacity, moisture retention capacity, permeability and aeration. Overland/sheet flow occurs only during extreme rain events, and no landslides have been recorded. The topsoil varies from approximately 20 to 150 cm. Most of the nutrients are stored in the humic topsoil and biomass (DESIR, p. 6-14 to 6-20).

3.6 Aquatic Biological Resources

Aquatic biological sampling during the ESIR period occurred during three sampling events over different seasons and included sampling for fish and macroinvertebrates, water quality (from the water resources studies discussed above), food web (carbon isotope studies), and fish and prawn tissue for metal content (DESIR, p. 6-8). The field sampling results showed 113 fish species, including two that are new to science in the Nickerie basin. Fish diversity was high even in the small streams (DESIR, p. 6-30). These results indicate that small drainages are important for protecting high biodiversity. Approximately 60 families of macroinvertebrates were found in the Concession area (DESIR, p. 6-30). The field results showed elevated aluminum concentrations during the wet seasons (Figure 5). Aluminum concentration in fish tissues were highly variable but generally higher than known toxicity levels) with no notable seasonal patterns (DESIR, p. 6-29). The streams in the concession are generally clear and only have short periods of higher turbidity during the wet seasons (DESIR, p. 6-29). The clarity of the waters is important for fish reproduction and survival, as noted above.

Figure 5: Aluminum Concentrations in Streams in the Nickerie Drainage Basin



Source: DESIR, Figure 6-14, p. 6-40.

4.0 Environmental Impact

The impact of bauxite mining on the environment in the Bakhuis concession is discussed in Chapter 9 of the DESIR: Biophysical Impact Assessment. Table 1 contains a summary of the predicted environmental impacts of high significance and associated mitigation measures for geology, soils, land use, air quality, water resources, freshwater ecology, and terrestrial vegetation, with comments on mitigation and impact. Each area of impact (e.g., geology, soils) is discussed in this section.

The effectiveness of mitigation measures used at 25 hardrock mines in the United States was evaluated as part of a 2006 study (Kuipers et al., 2006). Exceedences of water quality standards were found to occur at approximately 75% of the mines studied. Failure of mitigation measures was responsible for a sizable portion of the exceedences. Importantly, when the authors examined predictions made in Environmental Impact Statements about water quality after mining, the predictions made without taking mitigation measures into account were found to be much closer to reality than those made after considering the effect of mitigation measures. With that in mind, the predictions made in the DESIR for environmental performance without mitigation measures may be closer to post mining conditions and should be given more weight than the “after mitigation” predictions.

4.1 Geology and Landscape

As noted in Section 3.2, the presence of the plateaus increases ecological niches, and the removal of the plateaus, or large sections of the plateaus will decrease both ecological niches and biodiversity. The significant mining-related impacts associated with geology and landscape are loss of geologic formation, change in landforms, and loss of visual quality and sense of place. These impacts were rated as very high, high, and very high, respectively before mitigation. After mitigation, which included minimizing the footprint, remediating as soon as possible, and identifying no-go areas, their respective significance was lowered to high, low, and high. None of these impacts are reversible in human lifetime, and all are an unavoidable consequence of mining. The drop in significance to low from high for change in landform is unsupported when all mined plateaus will essentially disappear and cannot realistically be restored to their original condition. Therefore, compensation must be designed for all these impacts. The most important impact related to geology and landscape is the removal of the bauxite plateaus.

4.2 Water Resources

The major mining-related impacts associated with water resources (groundwater, surface water, and springs) are loss of the shallow perched aquifer system, water pollution, and reduction in water quantity. The significance of these impacts was rated as high, very high, and high, respectively before mitigation. After mitigation (see Table 1), the significance was the same for loss of the shallow perched aquifer system, and was lowered to medium and very low for water pollution and reduction in water quantity.

The DESIR does make predictions about percent reductions in water quantity in individual drainage basins but does not make predictions about which drainages will be most impacted by loss of the shallow perched aquifer system or by water pollution. This lack of specificity is unacceptable in an ESIR. The effects on each of the five major drainages must be detailed, especially in terms of water quality impacts. Predicted concentration ranges of all contaminants of concern during construction and mining should be made, and affirmative statements should be made about whether or not individual contaminants will exceed water quality standards. These predictions should be made for each drainage, and the geographic extent and temporal duration of increases above baseline concentrations and exceedences of standard should be estimated.

Loss of Shallow Perched Aquifer System

The loss of the shallow groundwater aquifer in the plateaus is likely the largest hydrologic impact associated with bauxite mining in the Bakhuis concession and is an irreversible impact. Impacts to water resources from removal of the bauxite plateaus include increased flooding and flashiness of streams, decreased seep flows (which are likely relied upon by wildlife and vegetation), increased erosion, and diminished flow to smaller streams and wetlands during the dry seasons. In some places in the DESIR the shallow aquifer is described as perched, and in others it is described as feeding the lower aquifer. The basis for characterizing the upper aquifer as perched is unsupported by the information presented. Unless further work shows it to be perched, we should assume that it is hydrologically connected to the lower aquifer and that destruction of the upper aquifer would lower water levels in the lower aquifer. The prediction that a clay layer will limit losses from the upper aquifer is also unsupported by the information presented.

A plan for compensating for the loss of the shallow groundwater system must be included in the DESIR. However, removal of the plateaus and destruction of the shallow aquifer system will irrevocably change the ecosystem in terms of hydrology, landscape, and interconnectedness of biological systems in the area. Mitigation measures should address not only the presence of flow but its natural variability (US EPA, 1999). None of the mitigation measures proposed would address the changes in flow to small streams and shallow and deeper groundwater expected as a result of removal of the plateaus. Predictions should be made regarding the specific streams and general locations of springs that will have modified flow conditions, and the changes in flow should be estimated on a seasonal basis.

Water Pollution

According to the DESIR, water pollution from bauxite mining will definitely occur, will be regional in extent and intense, and will last a long time (DESIR, Table 9-29, p. 9-41). The significance of water pollution associated with mining is very high, and the confidence that pollution will occur without mitigation measures is high. With mitigation, the significance is predicted to drop to medium (with a medium level of confidence) and be only local in extent but still last a long time. Considering the likelihood that planned mitigations will fail, adverse water quality effects are highly likely from the proposed mining.

The key mitigation measures proposed to minimize water pollution include avoiding direct discharges to smaller streams, containing stormwater and other runoff, developing water quality objectives, and developing programs and plans. Developing water quality objectives and water and waste management plans are necessary steps for minimizing water pollution, but they do not constitute mitigation directly. Areas with high potential for pollution cannot realistically be fully contained, especially when no groundwater containment system exists. The DESIR does not mention water treatment for mine water, yet this may be necessary to reduce impacts to groundwater and surface water resources. Very little mention is made of water quality impacts

to groundwater. Predictions of the extent and degree of impact to groundwater quality from mining should also be included in a final ESIR.

The general types of contaminants that may result from mining activity are listed in the DESIR (Table 9-28, p. 9-39) and include salinity, nitrate/ammonia, acidity, heavy metals, hydrocarbons, and suspended solids. However, there is little specificity in terms of which heavy metals might be elevated above baseline values or standards, of possible ranges of pH values in specific streams during mining. Naturally elevated aluminum is mentioned, and elsewhere in the DESIR, they acknowledge that higher dissolved aluminum concentrations will result from mining activity. The only specific heavy metals mentioned that might increase in concentrations are copper, zinc, and "a few other metals" if conditions do become acidic. In the section on impacts to freshwater ecology, aluminum, copper, zinc, lead, mercury, cadmium, silver, and manganese are mentioned as being "of interest" toxicologically (DESIR, p. 9-53), but not all are mentioned in the section on water pollution. The increased dissolved aluminum from bauxite mining may chemically associate with dissolved organic matter in streams, making the organic matter less soluble and more hydrophobic (Hall et al., 1985). If organic matter is less soluble, it will be less available as a nutrient for aquatic biota. If toxic metals chemically complex with dissolved organic matter in streams, they are generally less bioavailable to aquatic biota (see, e.g., Playle, 1998; MacRae et al., 1999; Marr et al., 1999). However, in contaminated reaches of stream, high dissolved aluminum concentrations may swamp the available complexing sites on organic matter, and other toxic metals such as copper, lead, and zinc will be more bioavailable to aquatic biota.

The DESIR states that water resources are only pathways to receptors (such as fish or humans, through drinking water), rather than receptors themselves. Further, the DESIR concludes that the significance of an impact to water resources can only be evaluated by considering the use of the water by "receptors" (DESIR, p. 9-31). In a remote and highly biologically diverse area like the Bakhuis Concession, where water users (human, wildlife, or otherwise) have not been fully evaluated, impacts to water resources should be considered in terms of the change from baseline (pre-mining) water quality and quantity conditions rather than standards. The DESIR attempts to do this through trigger and action levels but falls short because the levels are not always defined to protect baseline water quality and quantity conditions.

The DESIR makes no affirmative statements about which pollutants might exceed water quality standards or where exceedences might occur. In a footnote on page 9-40 of the DESIR, they note that indirect impacts to terrestrial and aquatic ecology may last for 5 to 10 km downstream of the disturbance, but this geographic extent of impact and the relationship to an undefined disturbance is never elaborated upon in subsequent sections. Much more detail about the type, geographic extent, and duration of water quality impacts must be included in a final ESIR.

Reduction in Water Quantity from Mining-Related Withdrawals

Reductions in water quantity are expected from water supply and mining requirements. Estimated water volumes required for mining are contained in Table 9-30 of the DESIR (p. 9-41). Up to 968 m³/day may be required during the construction phase, and up to 1,151 m³/day, with a maximum rate of 16.4 liters/second, may be required during mining operation. Sources considered for water supply include Mozes Creek and the Nickerie River. During low flow conditions, using the inadequate available flow data from the Nickerie River, mining water requirements would represent ~16% of the available flow at Blanche Marie Falls (DESIR, p. 9-42). There are no measured flow data for Mozes Creek (DESIR, p. 9-43). One of the mitigations measures is to take no more than 5% of the daily flow from Mozes Creek and use at least six months of data from a continuous flow gage to calculate a low flow threshold (DESIR, Table 9-31, p. 9.43). The latter part of this "mitigation" should instead be a requirement for the final ESIR. Without knowing continuous flow rates, potential impacts on water resources and aquatic biota cannot be known. And without knowing potential impacts, alternatives for water withdrawal cannot be adequately considered (see Section 5.0 of this review). Therefore, continuous flow data from the Nickerie River and Mozes Creek should be collected and evaluated as part of a final ESIR and in support of an alternatives analysis for water withdrawal.

4.3 Terrestrial Resources (Vegetation and Soil)

The significant mining-related impacts associated with soils and terrestrial vegetation are increased erosion and loss of soil resources. These impacts were rated as medium and high, respectively, before mitigation. After mitigation, which included limiting forest clearing, remediating as soon as possible, and stockpiling soils for remediation, the significance of both impacts were lowered to low. Erosion is a certain impact from bauxite mining and will more likely be of high significance without mitigation and high with mitigation. Stockpiles will likely have substantial losses to streams by erosion. Stockpiling of soils was found to adversely affect rehabilitation of areas impacted by bauxite mining in Australia (Schwenke et al., 2000). Rehabilitated soils were shallower, more compacted, and stored less organic matter than undisturbed soils. Schwenke et al. (2000) recommend avoiding soil stockpiling, retaining more volunteer grasses, and minimizing soil compaction to optimize post-mining soil organic matter development.

The significant mining-related impacts associated with terrestrial vegetation are loss of the mesic, *Buxus citrifolia*, low meso-xeric, and dwarf xeric thicket (DXT) forests and the loss of orchids and Bromeliads. These impacts were rated as very high for loss of the mesic and dwarf xeric thicket forests and high for the other losses. After mitigation, which includes unspecified minimization of the project footprint and no-go areas and avoiding damage to all dwarf xeric thicket patches with a 100-m buffer zone around the DXT patches, the significance of the terrestrial vegetation impacts was lowered to medium for all forest loss except the DXT (lowered to high), and the significance of loss of orchids and Bromeliads was lowered to low. None of these impacts are reversible in human lifetime, and all are an unavoidable consequence of

mining. No alternative mining approaches or compensation measures were identified to address the loss of forests.

The decrease to medium significance for the mesic forest is not warranted or supported. Rehabilitating roads/borrow areas and maintaining vegetation between plateaus are not mitigations for the mesic forest. Rehabilitation will be impossible because conditions required for mesic forest will be eliminated (geology, elevation removed). Although buffer zones were proposed for most of the forests, no 100-m buffer zone was proposed for mesic or the low meso-xeric forests. Compensation measures must be established for all terrestrial vegetation losses.

4.4 Freshwater Ecology

The significant mining-related impacts associated with freshwater ecology are loss of aquatic diversity from increased sedimentation and toxicological effects. The significance of these impacts was rated as high before mitigation and very low and low, respectively, after mitigation. Mitigation included erosion/sediment control measures, 100-m wide vegetation buffers along streams, locating all key stockpiles and infrastructure in one drainage basin, and using best practices for handling of toxic materials.

Contaminants of freshwater ecological concern resulting from mine operation and leaching include aluminum, copper, zinc, lead, mercury, cadmium, silver, manganese, and zinc. Concentrations of aluminum, copper, lead, and zinc may locally exceed toxicological thresholds, although possible mining-related concentrations were not estimated (DESIR, p. 9-53).

Limiting discharges to reaches with known refugia (smaller tributaries where fish could avoid impacts in mainstem) could limit impacts to fish but would still adversely affect macroinvertebrates. Bauxite tailings were found to adversely affect macroinvertebrate assemblages in a lake in Brazil. Species densities were lower in the areas affected by bauxite tailings, and one indicator species was found only in areas impacted by bauxite tailings (Fonseca and Esteves, 1999). Stream biofilm (algae, etc.) was not monitored as part of the ESIR baseline analysis. A more complete program for monitoring sediment (grain size distribution, concentrations of contaminants of concern) and biofilm (type, abundance, and concentrations of contaminants of concern) should be designed and implemented.

4.5 Air Quality

The significant mining-related impacts associated with poor air quality are human health and vegetation impacts and an increase in carbon emissions. These impacts were rated as having medium (human health), low (vegetation), and high (carbon emissions) significance before mitigation. However, if the more protective Canadian standard of 25 µg/m³ (Health Canada, 1998) was used rather than the 70 µg/m³ standard, the significance of the impacts to human health would be high without mitigation. Mitigation was only proposed for the impacts to human health, and after mitigation, which included using dust suppressant on roads, limiting the speed limit to 40 km/hr on site, and limiting load sizes to reduce spillage, the significance was

lowered to low. The use of dust suppressant can adversely affect stream ecology by increasing contaminant concentrations in runoff to streams, but this was not discussed in the DESIR.

No mitigations were presented for the impact of poor air quality on terrestrial vegetation. Only chemical air pollutants (SO_x, NO_x, ozone, etc.) were considered, yet the impact from dust associated with the mining operation will likely be the most important air quality impact to vegetation. Studies on the impact of dust on local vegetation should be conducted.

Similarly, no mitigation measures were included for increased carbon emissions, even though this impact was listed as having high national or international significance (see Table 1). The mining company could commit to using low-emission vehicles, minimizing their carbon footprint, and purchasing carbon credits, planting trees, etc.

4.6 Land Use

The significant mining-related impact associated with land use is fewer options for future land use due to inadequate remediation. The significance of this impact without mitigation was considered high. The significance was dropped to medium after mitigation measures were in place, yet the only mitigation measures included were investigations and studies, which in and of themselves cannot decrease impacts.

Bakhuis Mountains, in front the railroad from Bakhuis to Apoera



Table 1: Environmental impacts of high significance and associated mitigation for geology, soils, land use, air quality, water resources, freshwater ecology, and terrestrial vegetation, with comments on mitigation and impact

Area	Impact	Significance without mitigation	Extent	Mitigation	Significance after Mitigation	Comments: Likelihood mitigation will decrease impact
Geology, geomorphology, landscape	Loss of geologic formation	Very high	National	Minimize footprint; no-go areas	High	Unavoidable consequence, irreversible impact, needs compensation.
Geology, geomorphology, landscape	Change in landforms	High	Regional	No-go areas; rehabilitate as soon as possible	Low	Unavoidable consequence, irreversible impact, needs compensation. Drop to low significance is unsupportable when all mined plateaus will disappear.
Geology, geomorphology, landscape	Loss of visual quality, sense of place	Very high	(Inter)-National	Minimize footprint; rehabilitate as soon as possible; strategic planning	High	Unavoidable consequence, irreversible impact, needs compensation. Integration of environment will be permanently damaged due to loss of mined plateau areas; similar to accelerating erosion by ~1 million years.
Soils	Increased erosion on mine slopes and roads	Medium	Local	Limit forest clearing, rehabilitate as soon as possible; schedule clearing in dry seasons as much as possible	Low	Should be high significance without mitigation because effect is long-term. No specifics for limiting forest clearing.
Soils	Loss of soil resources	High	Local	Limit forest clearing, rehabilitate as soon as possible; stockpile topsoil/subsoil for remediation	Low	Mining will remove soil from plateaus; stockpiles will have substantial losses to streams by erosion. No specifics for forest clearing.

Area	Impact	Significance without mitigation	Extent	Mitigation	Significance after Mitigation	Comments: Likelihood mitigation will decrease impact
Land Use	Fewer options for future land use due to inadequate rehabilitation	High	Regional	Investigate other sources for rehabilitation; undertake pilot tests on suitability of alternative rehabilitation materials	Medium	Investigations and tests are not mitigation.
Air Quality	Impacts on human health from poor air quality	Medium	Regional	Use dust suppressant on roads; speed limit of 40 km/hr on site; limit load size to reduce spillage	Low	If use more protective Canadian standard ^a (25 µg/m ³ rather than 70 µg/m ³), significance would be high without mitigation.
Air Quality	Impacts on vegetation from poor air quality	Low	Local	NA	NA	The DESIR includes no relevant standard for dust and chemical emissions on vegetation. Includes only chemical air pollutants (Sox, Nox, ozone...). Impact of dust to vegetation will likely be the largest air quality effect.
Air Quality	Contribution to carbon emissions	High	(Inter)-National	None	NA	Mitigation is possible through purchase of carbon credits, planting trees, etc. Could also commit to using low-emission vehicles and minimizing carbon footprint.
Area	Impact	Significance without mitigation	Extent	Mitigation	Significance after Mitigation	Comments: Likelihood mitigation will decrease impact

Water Resources	Loss of shallow perched aquifer system	High	Local	Mine from middle of plateau toward edges; backfill mined area; rehabilitate as soon as possible	High	Likely the largest hydrologic impact. Unavoidable consequence, irreversible impact, needs compensation, cannot be mitigated. Prediction that clay will limit loss is erroneous; document does explain function of upper aquifer correctly (acts as sponge, etc.); basis for characterizing upper aquifer as perched unsupported by information.
Water Resources	Water pollution	Very high	Regional	Avoid direct discharges to small/sensitive catchments; develop water management plan; contain stormwater; clean settlement facilities; full containment of areas with high pollution potential; develop/maintain/adapt procedures for transport, handling, storage of hazardous substances; develop management program for wastes; set water quality objectives with regulatory authority	Medium	Developing a plan isn't a mitigation measure; areas with high pollution potential cannot realistically be "fully contained"; developing water quality objectives isn't a mitigation measure; no mention of treatment of mine water or discharges.
Area	Impact	Significance without mitigation	Extent	Mitigation	Significance after Mitigation	Comments: Likelihood mitigation will decrease impact

Water Resources	Reduction in water due to mine water supply requirements	High	Local	Take mine makeup water from large river (e.g., Nickerie); reuse settled water and stormwater/groundwater ponds for dust suppression; only take water from Nickerie River when flows exceed 0.5 m ³ /s and do not exceed 5% of total daily flow; do not take more than 5% of daily flow from Mozes Creek and use 6+-month data from continuous flow gauge to determine low flow threshold; staff training on water conservation practices; water minimization for laundry and other water use equipment	Very low	There are no measurements of baseline stream flows. Need baseline measurements to compare water supply needs to amount available - including timing and proposed withdrawal locations.
Area	Impact	Significance without mitigation	Extent	Mitigation	Significance after Mitigation	Comments: Likelihood mitigation will decrease impact

Freshwater Ecology	Loss of aquatic diversity from increased sedimentation	High	Regional	Sediment control/management structures; implement sediment handling methods; minimize disturbance to streams outside mine areas; maintain 100-m wide vegetation buffers along watercourses; revegetate as soon as possible; locate all key stockpiles/infrastructure in one drainage basin; meet water quality standards in discharges; monitor metal concentrations in discharge and receiving waters; use best practice for toxic materials	Very low	Better mitigation would be to limit discharges (direct or nonpoint sources) to reaches with known refugia streams - could mitigate for fish but not macroinvertebrates or aquatic plants. Need to monitor sediment and biofilm.
Freshwater Ecology	Loss of aquatic diversity due to toxicological effects	High	Regional	Sediment control/management structures; implement sediment handling methods; minimize disturbance to streams outside mine areas; maintain 100-m wide vegetation buffers along watercourses; revegetate as soon as possible; locate all key stockpiles/infrastructure in one drainage basin	Low	The results of studies on possible contaminants of concern were not included in the publicly available DESIR reports. Need to perform leach and erosion tests on proposed mined materials and include in main body of DESIR.
Area	Impact	Significance without mitigation	Extent	Mitigation	Significance after Mitigation	Comments: Likelihood mitigation will decrease impact

Terrestrial Vegetation	Loss of Mesic forest	Very high	(Inter)-National	Minimize footprint of project; rehabilitate unused exploration roads and borrow areas; retain vegetation on areas between mining plateaus; avoid felling large trees as much as possible; establish no-go areas; rehabilitate as soon as possible; follow guidelines in CCRP for rehabilitation program	Medium	Unavoidable consequence, irreversible impact, needs compensation. Decrease to medium significance not warranted or supported. Rehabilitating roads/borrow areas and maintaining vegetation between plateaus are not mitigations for mesic forest. Rehabilitation impossible because conditions required for mesic forest will be eliminated (geology, elevation removed). Note: no 100-m buffer zone proposed for mesic forest areas.
Terrestrial Vegetation	Loss of Buxus citrifolia forest	High	International	Minimize footprint of project; no-go areas; avoid any damage to all patches of MF-B; make 100-m buffer zones around known patches of MF-B	Medium	Unavoidable consequence, irreversible impact, needs compensation. Avoiding all damage is unrealistic.
Terrestrial Vegetation	Loss of Low Meso-zeric forest	High	Guiana Shield	Minimize footprint of project; no-go areas; avoid any damage to all patches of LXF, especially patches > 1 ha; research into vegetation in southern part of reserve and CSNR; fire control program during dry season	Medium	Unavoidable consequence, irreversible impact, needs compensation. Avoiding all damage is unrealistic. Research into vegetation is not mitigation. Note: no 100-m buffer zone proposed for low mesozeric forest areas.
Area	Impact	Significance without mitigation	Extent	Mitigation	Significance after Mitigation	Comments: Likelihood mitigation will decrease impact

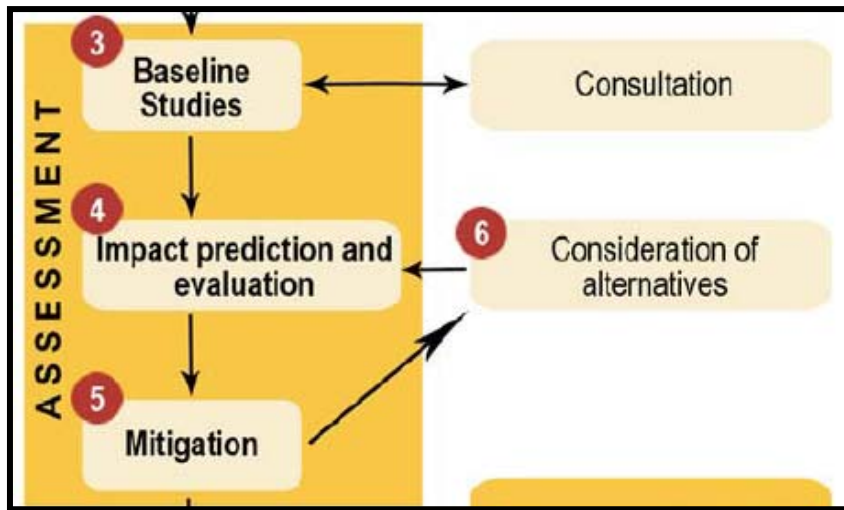
Terrestrial Vegetation	Loss of dwarf xeric thicket	Very high	Guiana Shield	Minimize footprint of project; no-go areas; avoid any damage to all DXT patches; 100-m buffer zone around known patches; fire control program during dry season; research into vegetation in southern part of reserve and CSNR	High	Unavoidable consequence, irreversible impact, needs compensation. Avoiding all damage is unrealistic. Research into vegetation is not a mitigation.
Terrestrial Vegetation	Loss of orchids and Bromeliads	High	Regional	Restrict access; impose ban on plant collecting; environmental awareness/education program for employees	Low	Unavoidable consequence, irreversible impact, needs compensation. Need plan for implementing/enforcing ban.

Source: DESIR, Chapter 9

5.0 Alternatives Analysis

No alternatives analysis was conducted as part of the DESIR. Considering the proximity of the Bakuis Concession to the Central Suriname Nature Reserve (CSNR), a World Heritage Site, it is especially important to present and consider the no-action alternative. Royal Dutch Shell, for example, has made a commitment to not operate in World Heritage Sites (IFC, Date Unknown). The upper portions of the Coppename watershed is in the CSNR (DESIR, p. 2-14). The standard approach to conducting the assessment phase of a social and environmental impact assessment is shown in Figure 6. The Bakhuis DESIR did identify mitigation measures, but a comparison of alternatives, including the “no-action” alternative, was not included in the DESIR. According to the International Finance Corporation (IFC), alternatives can include different layouts on the project site, alternative engineering processes and construction practices, and selection of different sites or routing of linear facilities (IFC, Date Unknown). A thorough analysis of alternatives for the Bakhuis Project, including the no-action alternative, should be included in a final ESIR.

Figure 6: Standard Social and Environmental Impact Assessment Process: Assessment Phase



Source: Modified from IFC, Date Unknown.

6.0 Conclusions and Recommendations

This section presents the main conclusions and recommendations of the DESIR review by activity or natural resource. General comments about the adequacy of the DESIR are included. The baseline conditions, identified impacts and their severity, and mitigation measures and their effectiveness are discussed for each natural resource. Recommendations for improvement for a final ESIR are also presented.

General Comments on DESIR

- The impacts to the environment are not disputed by the Draft ESIR. In fact, the severity of impacts, especially without mitigation, is highlighted in the DESIR. Investigation of the success of mine mitigations measures indicates that they are largely unsuccessful in preventing environmental impacts (Kuipers et al., 2006). Therefore, the performance of mitigation measures identified in the DESIR is likely severely overestimated. More conservative assumptions about the success of the mitigation measures should be used to estimate the severity of impacts from the proposed project. Alternative mining and operational measures that further minimize environmental impacts, including increased no-go areas, should be fully developed as alternatives in the final ESIR.
- The DESIR does not make specific predictions about which drainages will be most impacted by loss of the shallow perched aquifer system or by water pollution. This lack of specificity is unacceptable in an ESIR. The effects on each of the five major drainages must be detailed, especially in terms of water quality impacts. Predicted concentration ranges of all contaminants of concern during construction and mining should be made, and affirmative statements should be made about whether or not individual contaminants will exceed water quality standards. These predictions should be made for each drainage, and the geographic extent and temporal duration of increases above baseline concentrations and exceedences of standard should be estimated.
- An alternatives analysis, which is a standard part of an ESIR according to IFC guidelines, was not considered in the Bakhuis DESIR. A thorough analysis of alternatives for the Bakhuis Project, including the no-action alternative and alternative engineering design and development options, should be included in a final ESIR.
- A number of the impacts cannot be prevented, even with mitigation measures, and should be compensated for before operations begin. A compensation plan should be included as part of the revised ESIR.

Environmental Sampling and Baseline Conditions

- Baseline studies were generally conducted over a 12-month period with monthly sampling, and were conducted over the two wet and two dry seasons (DESIR, p. 6-4). Water quality and quantity monitoring was conducted for two years, but the frequency of monitoring was not noted. A year of sampling over a large area with only monthly sampling will not elucidate important changes in water quality and quantity that occur during episodic events, especially early in storm events.
- Additional water quality, flow, and sediment sampling should be conducted before mining begins, especially early in the wet periods during the rising limbs of the hydrographs. More sampling of groundwater levels in the “perched” aquifer should be conducted throughout the wet and dry seasons to more fully determine its spatial and temporal extent and its relationship to surface water and deeper groundwater.

- Better analytical methods with lower detection limits should be used for future surface water and groundwater quality monitoring; limits of detection should be ~1/10 of lowest relevant standard or baseline condition, whichever is lower and analytically possible.

Geochemical Testing and Contaminants of Concern

- Some geochemical testing of the rock in the concession was conducted, but only very limited information was supplied on the results and the nature of the testing in the DESIR and the appendices available on the SRK website. Based on the limited information available in the DESIR, the contaminants of concern are copper, zinc, iron, lead, manganese, mercury, cadmium, silver, and aluminum. These metals can cause toxicological impacts to vegetation and aquatic ecological resources.
- The results of geochemical testing should be included in detail in the DESIR, and its appendices and should be readily available to the public for review. Without this information, it is impossible to evaluate whether the contaminants of concern have been properly identified.

Geology and Landscape

- The land surface in the Bakhuis concession is cut by many rivers and streams, which have created topographically isolated, but ecologically linked, plateaus. The presence of the plateaus adds structural complexity and thereby increases the ecological diversity in the Bakhuis Concession. Removal of the plateaus or large sections of the plateaus will decrease both ecological niches and biodiversity.
- According to the DESIR, a 10-meter wide rim of bauxite will be left in place around the perimeter of most of the mined plateaus (p. 5-20). However, if the plateaus are small (size not defined in the DESIR), an “alternative approach” may be necessary, implying that the entire plateau will be removed in some circumstances.
- Leaving a perimeter rim in place could minimize runoff and erosion, and this practice should be implemented on all plateaus regardless of size.

Water Resources: Groundwater

- Groundwater aquifers include a shallow “perched” aquifer on the plateaus, and a lower fractured rock aquifer. The upper aquifer, which would largely be removed during mining, provides water to the lower aquifer and to smaller streams near the plateaus during the dry season.
- The loss of the shallow groundwater aquifer in the plateaus is likely the largest hydrologic impact associated with bauxite mining in the Bakhuis concession and is an irreversible impact. Removal of the plateaus and destruction of the shallow aquifer system will irrevocably change the ecosystem in terms of hydrology, landscape, and interconnectedness of biological systems.

- No measures were identified in the DESIR that would mitigate the loss of the shallow aquifer. Alternative mining methods, no-go zones, or compensation measures should be identified in a final ESIR for this severe impact to the environment.
- Very little detail is provided on water quality impacts to groundwater from bauxite mining. Predictions of the extent and degree of impact to groundwater quality from mining should be included in a final ESIR.

Water Resources: Surface Water

- Impacts to water resources from removal of the bauxite plateaus include increased flooding and flashiness of streams, decreased seep flows (which are likely relied upon by wildlife and vegetation), increased erosion, and diminished flow to smaller streams and wetlands during the dry seasons. Predictions should be made regarding the specific streams and general locations of springs that will have modified flow conditions, and the changes in flow should be estimated on a seasonal basis.
- The major rivers are in five drainages and are rainfall-dominated, have low turbidity, variable suspended solids concentrations, and seasonally variable flows (two dry seasons and two rainy seasons). Streamflow measurements were only available for the Nickerie drainage (from 1975 to 1985). The lack of recent streamflow data in any of the drainages is a major gap in baseline information, and monitoring of flows in small to large streams should be conducted over both rainy and dry seasons. Continuous flow data from the Nickerie River and Mozes Creek should be collected and evaluated as part of a final ESIR and in support of an alternatives analysis for water withdrawal.
- In a remote and highly biologically diverse area like the Bakhuis Concession, where water users (human, wildlife, or otherwise) have not been fully evaluated, impacts to water resources should be defined in terms of the change from baseline (pre-mining) water quality and quantity conditions rather than standards. The DESIR attempts to do this through trigger and action levels but falls short because the levels are not always defined to protect baseline water quality and quantity conditions.
- No action level was set for arsenic, cadmium, chromium, dissolved oxygen, lead, mercury, nitrite, selenium, copper, total cyanide, or turbidity. All of these parameters are listed as a parameter of concern to the public or leached from mining activity and action levels should be set. Trigger and action levels should also be set for dissolved and total aluminum, with lower levels set for dissolved aluminum. The implementation of seasonal standards should be considered, especially for aluminum, to account for higher natural concentrations during the rainy seasons.
- The DESIR does not mention water treatment for mine water, yet this may be necessary to reduce impacts to groundwater and surface water resources.
- Mitigation measures for water resources should address not only the presence of flow but its natural variability. None of the mitigation measures proposed would address the decreases in flow to small streams expected as a result of removal of the plateaus.

Terrestrial Resources (Vegetation and Soil)

- The Bakhuis concession is largely undisturbed and unaffected by human activities, and 91% of the country is covered in primary rainforest. Limited sampling of terrestrial vegetation identified many forest types, including very tall trees on plateaus and tall mature mesic forests on well-drainage plateaus. Mining would largely eliminate the tall tree forests on plateaus.
- Concession soils are acidic to very acidic, but soils on hills and plateaus are well drained with moderate to good rooting capacity, moisture retention capacity, permeability, and aeration. Most nutrients are stored in the humic topsoil and biomass.
- The significant mining-related impacts associated with soils and terrestrial vegetation are increased erosion and loss of soil resources. The mitigation measures identified (limiting forest clearing, quick remediation, and stockpiling soils for remediation) may be ineffective in reducing impacts, based on results from bauxite mining in Australia.
- The significant mining-related impacts associated with terrestrial vegetation are loss of the mesic, *Buxus citrifolia*, low meso-xeric, and dwarf xeric thicket (DXT) forests and the loss of orchids and Bromeliads. None of these impacts are reversible in human lifetime and all are an unavoidable consequence of mining. Compensation measures must be established for all terrestrial vegetation losses.

Freshwater Ecology

- Baseline sampling of aquatic biological resources identified 113 fish species, including two that are new to science (Nickerie basin). Fish diversity was high even in the small streams, indicating that small drainages are important for protecting biodiversity. The streams are generally of low turbidity, except during the wet seasons, and the clarity of the water is important for fish reproduction and survival.
- The significant mining-related impacts associated with freshwater ecology are loss of aquatic diversity from increased sedimentation and toxicological effects. Contaminants of freshwater ecological concern include aluminum, copper, zinc, lead, mercury, cadmium, silver, manganese, and zinc, and concentrations of aluminum, copper, lead, and zinc may locally exceed toxicological thresholds.
- An alternatives analysis should be conducted to minimize potential impacts to aquatic biological resources from mining activity. A more complete program for monitoring sediment (grain size distribution, concentrations of contaminants of concern) and biofilm (type, abundance, and concentrations of contaminants of concern) should be designed and implemented.

Air Quality

- The significant mining-related impacts associated with poor air quality are human health and vegetation impacts and an increase in carbon emissions. Mitigation was only proposed for the impacts to human health.
- No mitigations were presented for the impact of poor air quality on terrestrial vegetation. Only chemical air pollutants (SO_x, NO_x, ozone, etc.) were considered, yet the impact from dust associated with the mining operation will likely be the most important air quality impact to vegetation. Studies on the impact of dust on local vegetation should be conducted.
- No mitigation measures were included for increased carbon emissions, even though this impact was listed as having high national or international significance. The mining company should commit to using low-emission vehicles, minimizing their carbon footprint, and purchasing carbon credits, planting trees, etc. as part of the mitigation package.

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Corantijn river

CHAPTER 4: REVIEW OF THE BAKHUIS ESIA AND ASSOCIATED DOCUMENTS

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Introduction

The following is an independent evaluation of the environmental and social impact assessment (ESIA) studies conducted for the proposed Bakhuis Bauxite Project in West Surinam. This evaluation is based on the following documents:

- Draft Environmental and Social Impact Assessment of the Mining Aspects of the Proposed Bakhuis Bauxite Project (January 2008);
- Draft Environmental and Social Impact Assessment of the Transport Aspects of the Proposed Bakhuis Bauxite Project (January 2008);
- Public Participation and Consultation Plan (January 2008);
- Draft EMMP Framework for Construction and Operations Phases (April 2008);
- Draft Community Engagement Plan: West Suriname Communities (May 2008);
- Draft Conceptual Closure and Rehabilitation Plan (February 2008).

The evaluation has been completed to assist project-affected communities in understanding and responding to the ESIA and the proposed mine and associated developments more generally. The evaluation does not review the technical assessment of environmental and social impacts of the Bakhuis projects, but focuses primarily on comparing certain aspects of community engagement with emerging international best practice. This evaluation is forward-looking in that it concentrates most on those aspects of stakeholder engagement that are relevant for the future dialogue between the community and the companies, given the status of the project and the extensive studies of the project already undertaken.

1.0 Indigenous Rights and Community Support

1.1 Free, Prior Informed Consent and Broad Community Support

As the ESIA's point out, a fundamental issue raised by the Bakhuis project is the impact on land rights of the indigenous people living in the area. Under emerging principles of international law, projects planned for the traditional lands of or used by indigenous peoples are subject to the requirements of free, prior informed consent. As the companies recognize in the Public Consultation and Disclosure Plan, free prior informed consent is:

“...widely invoked as a requirement for development that directly affects indigenous people and their resources, and has been recognized as customary law by the Inter American Court of Human Rights since 1984. FPIC is also included in most guidelines and standards dealing with development impacts on indigenous people, and in the national laws of some countries, e.g. Peru and the Philippines. FPIC is also enshrined in the United Nations Declaration on the Rights of Indigenous People, which was adopted in September 2007.

Public Consultation and Disclosure Plan, at 13. Nonetheless, ostensibly because IFC refused to include FPIC in its Performance Standards and because it is apparently not recognized in

Surinamese law, the companies decided to reject application of FPIC for the purposes of this project. Instead, according to the PCDDP the companies will follow the position of the mining industries' International Council on Mining and Metals (ICMM). Under this standard the company must "seek to gain and maintain broad community support for their activities throughout the project cycle..." The PCDDP further states that the "companies believe that effective and transparent consultation leading to broad community support is essential to the success of their projects. In this context they will seek to achieve a social license to operate."

By the companies' own admission, the rejection of FPIC and adoption of a "broad community support" standard violates the customary international law applicable to the InterAmerican region. In *Saramaka People v. Suriname*, a case involving logging and mining concessions awarded by Suriname on territory possessed by the Saramaka people, the Inter-American Court of Human Rights concluded that members of the Saramaka people have a right to use and enjoy the natural resources that lie on and within their traditionally owned territory and that are necessary for their survival. The Court found that in restricting the Saramakas' property rights, the State had to ensure the Saramakas' "effective participation," that they received "reasonable benefits" from any development, and that there be an independent environmental and social impact assessment. *Saramaka*, at 129: Of further relevance to Bakhuis, the Court required the State to receive the "consent" of the indigenous communities in certain circumstances:

Regarding large-scale development or investment projects that would have a major impact within Saramaka territory, the State has a duty, not only to consult with the Saramakas, but also to obtain their free, prior, and informed consent, according to their customs and traditions.

Saramaka, at 134: The proposed Bakhuis project is precisely the type of "large-scale development or investment project" contemplated by the Court and thus the project sponsors must receive the prior, informed consent of the indigenous communities. The company should thus reconsider its approach and explicitly acknowledge and respect the indigenous communities' rights of free prior informed consent.

Although the companies refer to the need to receive a "social license to operate", that social license must be predicated on the international legal obligation to receive the consent of affected indigenous communities. A failure to recognize the right to consent (and by implication to withhold consent), weakens from the outset the role of the community in its relationship to the companies. It thus, for example, weakens the relative negotiating strength of the affected communities in negotiating the Impact Benefit Agreement (IBA) or the Community Development Plans contemplated by the ESIA's and the CEP. Without fully respecting the communities' authority to consent, the strength of the communities in negotiating a fair and equitable IBA is undermined.

1.2 Obligation for Good Faith Negotiations Leading to a Successful Outcome

The project sponsors also appear to fall short in meeting even the IFC's standards with respect to

the treatment of indigenous communities. According to IFC's Performance Standard 7, para. 13:

If the client proposes to locate the project on, or commercially develop natural resources located within, traditional or customary lands under use, and adverse impacts can be expected on the livelihoods, or cultural, ceremonial, or spiritual use that define the identity and community of the Indigenous Peoples, the client will respect their use by taking the following steps:

The client will enter into good faith negotiation with the affected communities of Indigenous Peoples, and document their informed participation and the successful outcome of the negotiation.

IFC Performance Standard 7, para. 13.: The Bakhuis projects trigger this requirement and thus the sponsors are required to enter into good faith negotiations that result in a successful outcome. IFC's guidance notes provide additional insight into what is required:

Whether the project should proceed with the potential adverse impacts on these lands should be subject to good faith negotiation with the affected communities of Indigenous Peoples. Good faith negotiation generally involves: (i) willingness to engage in a process and availability to meet at reasonable times and frequency; (ii) provision of information necessary for informed negotiation; (iii) exploration of key issues of importance; (iv) mutual acceptable procedures for the negotiation; (v) willingness to change initial position and modify offers where possible; and (vi) provision for sufficient time for decision making. The client should document the process of negotiation with the Indigenous Peoples, including their informed participation in the negotiation process, and the successful outcomes of such negotiation.

IFC Guidance Notes, para. G25: Although an agreement was reached late in the process with community leaders, the process did not meet the IFC's standards of good faith negotiations quoted above, as the process was rushed with little time for consideration or exploration of all of the issues by the communities. If the project is to go forward, project sponsors must re-initiate the negotiations according to the more systematic, fair and inclusive process contemplated by the IFC's standards. The negotiations must also reach, and document the process by which it reached, a "successful outcome" that enjoys broad support in the community.

1.3 Application of the Broad Community Support Standard

The disempowerment of the communities continues through the way "broad community support" is treated throughout the project documents. The companies' application of that standard is inconsistent and never defined in operational terms. Most notably, the broad community support standard, accepted in the PCDP and the ESIA's, is mysteriously missing in the Community Engagement Plan (CEP). The CEP does not appear to acknowledge that community engagement activities should be aimed at gaining broad community support and maintaining it through the life of the project. By dropping this standard, the CEP further disempowers the communities in

their relationship with the companies. Moreover, the CEP as currently drafted cannot ensure that the companies will meet the standard of broad community support to which they committed. The CEP should be reframed to ensure that community engagement is geared to gaining and maintaining broad community support throughout the life of the project.

As in the refusal to accept FPIC as the basis for their relationship with the communities, the failure to reflect the need for 'broad community support' will undermine the communities' ability to negotiate a fair and equitable IBA. The IBA, when it is negotiated, should be premised on the need to gain and maintain broad community support. The CEP does neither, suggesting that all of the rights of the affected communities appear to be met through the procedural steps of ensuring free, prior informed consultation. By placing the negotiations of an IBA or other measures in this context, the companies have stripped the affected communities of their legal rights to say no and compromised their position in the negotiations.

1.4 The Community Development Plan

The companies propose to develop a community development plan under the CEP. The timing and process for developing the Community Development Plan is not clear, but under international best practice such a plan must be an integral part of the ESIA and mitigation plan developed prior to implementation of the project. Moreover, the CEP states:

It is important to note that the CEP is not an Indigenous Peoples Development Plan (IPDP) as envisaged by the World Bank (World Bank, 1991) and the IFC (International Finance Corporation, 2006b). It is expected that community-oriented development plans will emerge under the leadership of the communities themselves (see Section 4). How these will be framed remains to be decided. It is anticipated that indigenous peoples' issues will be taken up in a variety of contexts, including the Impact-Benefit Agreement and in a community-led Community Development Plan.

CEP, at page 14: In this way, the companies appear to be sidestepping the clear requirements for developing an Indigenous Peoples Development Plan found in international standards. As the IFC notes, an Indigenous Peoples Development Plan can be included in a broader Community Development Plan as long as it contains specific components addressing the specific needs and rights of indigenous communities. Moreover, such a Community Development Plan must be developed through a process that includes the following steps:

- Involve Indigenous Peoples' representative bodies (for example, councils of elders or village councils, among others);
- Be inclusive of both women and men and of various age groups in a culturally appropriate manner;
- Provide sufficient time for Indigenous Peoples' collective decision-making processes;
- Facilitate the Indigenous Peoples' expression of their views, concerns, and proposals in the language of their choice, without external manipulation, interference, or coercion, and without intimidation.

IFC Performance Standard 7, at para. 9: An Indigenous Peoples Development Plan also has to include certain substantive standards as set forth in Annex A to IFC Performance Standard 7. Because the CEP is vague about how it will address indigenous peoples' rights and interests in the development of a broader Community Development Plan, it is not clear that the companies intend to meet the specific procedural and substantive requirements for an Indigenous Peoples Plan.

1.5 Integrating the IBA into the Approval Decision and the EMMP

According to the CEP, the communities and the companies have agreed to develop an Impact Benefit Agreement (IBA), "which will lay out the commitments of the companies towards the communities and particularly the benefits from the project that the communities can expect to enjoy." The promise of an IBA is mentioned throughout many of the documents but the sequencing of such a negotiation is not clear. Most importantly, the documents do not appear to require that the IBA be completed and approved by the affected communities *before* the project is approved by the government. If the IBA is meant in part to ensure that mitigation steps and other actions identified in the ESIA's are undertaken, then the IBA and any community development plans should be developed before final approval of the project.

Second, the future IBA does not appear to be integrated into the Environmental Management and Monitoring Plan. Page 35 of the EMMP acknowledges that monitoring might be aimed at monitoring "compliance with contractual commitments," but the IBA is not mentioned explicitly in the EMMP. This suggests that commitments under the IBA may not be taken as seriously as other actions identified in the ESIA's. The EMMP should be modified to clarify that the monitoring plan will be designed and implemented to ensure that the companies are in compliance with their commitments in the IBA.

1.5 Exclusion of Guyanese Indigenous Peoples from the ESIA

The ESIA's do not appear to address impacts on indigenous communities living downstream on the Corantijn River in Guyana. According to IFC's Performance Standards and best practice an ESIA should consider all environmental and social impacts in a project's area of influence and those who will be affected by such risks and impacts. IFC Performance Standard 1, para. 4: The requirements for assessment do not stop at national borders but are defined by the project's area of influence and include any transboundary impacts. IFC Performance Standard 1, para. 6; IFC Guidance Note 1, at para. G20.

In this case, the Transport ESIA acknowledges that the Corantijn River is used by communities on both sides of the border, but it does not separately analyze the impacts on Guyanese communities who are unlikely to benefit from the mine but who may be subject to different and more significant impacts than their Surinamese counterparts. The companies must separately assess, mitigate and monitor the impacts on these communities and must negotiate an agreement

in good faith with those communities. The companies must also comply with Guyanese law regarding any transboundary impacts.

2.0 Monitoring

2.1 Disclosure of Monitoring Reports under the EMMP

The Environmental Management and Monitoring Plan (EMMP) does not meet international practice as reflected in the IFC Performance Standards in several important ways. First, the EMMP is virtually silent about clear requirements for the public release of any monitoring data or reports. The EMMP does state that reporting “may take several forms,” including “summary reports to external stakeholders.” (EMMP, at 35). Nowhere does the EMMP commit to issuing such reports, state what should be included in the reports, or describe how such reports will be released to which external stakeholders. Indeed, the EMMP is generally silent about any details with respect to disclosure of any of the monitoring results.

This flaw is not corrected by the Draft Community Engagement Plan. The CEP also does not specify whether and how monitoring data will be disclosed to the public. It makes general references to supporting community participation in monitoring ‘as appropriate,’ but makes no clear commitment to disclosure of monitoring results.

This is in violation of the IFC Performance Standards, which require disclosure of:

“...periodic reports that describe progress with implementation of the Action Plan on issues that involve ongoing risk to or impacts on affected communities, and on issues that the consultation process or grievance mechanism has identified as of concern to those communities. If the management program results in material changes in, or additions to, the mitigation measures or actions described in the Action Plan on issues of concern to the affected communities, the updated mitigation measures or actions will also be disclosed. These reports will be in a format accessible to the affected communities. The frequency of these reports will be proportionate to the concerns of affected communities but not less than annually.”

IFC Performance Standards No. 1, para. 26: Although the “Action Plan” for the Bakhuis project—i.e. the mitigation measures identified in the Bakhuis ESIA—have apparently been disclosed to the public, neither the EMMP nor the CEP sets forth any commitments to release “periodic reports that describe progress with implementation” of these mitigation measures or any commitments under the IBA. Nor are there commitments to disclose any “material changes in, or additions to, the mitigation measures or actions described in the Action Plan....” Under the IFC Performance Standards such reports must be released at least annually.

As currently set forth in the project documents, no monitoring or reporting data is required to be made available to the communities throughout the implementation of the project. International best standards would require disclosure of third-party audits, independent monitoring data, any

changes in the scope or scale of the project that could affect the environmental or social impacts on the affected communities, and any changes in the planned mitigation or other measures included in the original ESIA. The EMMP and CEP should be modified to clarify and strengthen the regular public release of project implementation and monitoring information.

2.2 Grievance Mechanisms

The ESIA and associated documents, particularly the CEP, clearly commit the company to establishing a project-level grievance mechanism. See, e.g., Mining ESIA, at 10-14; CEP, at 25-26). Such grievance mechanisms are now required by the IFC's Performance Standards. The CEP provides the only description of the proposed "Grievance Management Mechanism" (CEP, at 25-26), but it does not provide sufficient detail to ensure that the proposed mechanism meets emerging international practice to ensure that the mechanism will effectively seek to resolve disputes rather than simply to "manage" them or have them "communicated" to project personnel.

The CEP's discussion of the grievance mechanism highlights certain important principles, including the need for fairness, objectivity, and clarity, but some aspects of the description of the grievance mechanism raise concerns. For example, the CEP states that "a hierarchy of mediation and response will be in place, with final recourse to the courts." This fundamentally misconstrues the relationship of the project-level grievance mechanism with respect to the rights of affected communities to pursue their complaints in a court of law. IFC's Performance Standard is clear that "the mechanism should not impede access to judicial or administrative remedies." Thus, the company cannot suggest that the grievance mechanism must be used *before* complainants seek a judicial or administrative remedy. The grievance mechanism exists independently of the court system.

IFC's Performance Standard and supporting Guidance Note also identifies other qualities or elements for grievance mechanisms that are not clearly indicated by the description provided in the CEP. According to the IFC:

- There should be a "procedure for receiving, addressing, and recording/documenting complaints."
- It should be "culturally appropriate and readily accessible to all segments of the affected communities."
- It should be available "at no cost and without retribution".
- The procedure should "ensure that the confidentiality of the persons raising the complaint is protected."
- "Grievances received and responses provided should be documented and reported back to the affected communities periodically."

IFC Performance Standard, No.1. at para. 23; IFC Guidance Note, para. 54. In addition, the IFC's Compliance Advisor/Ombudsman has released *A Guide to Designing and Implementing Grievance Mechanisms for Development Projects*, and the IFC has released a draft Good

Practice Note on Project-Level Grievance Mechanisms. A culturally appropriate grievance mechanism that is accessible to indigenous peoples is also required as part any Indigenous Peoples Development Plan or any broader Community Development Plan that address the rights and interests of indigenous peoples. IFC Performance Standard 7, Annex 1: these and other emerging standards of best practice should be used to guide the future establishment and evaluation of the Bakhuis grievance mechanisms.

3.0 The ESIA's and Associated Documents

3.1 Evaluating Associated Projects and Cumulative Impacts

In revising and updating the ESIA's for these related developments in West Suriname, the project sponsors need to provide a more coherent and integrated analysis of the environmental and social impacts. As conducted currently, the ESIA's have segmented the projects and their assessment in a way that obscures the overall impacts of bauxite production in the region. This approach violates the IFC's Performance Standards and international best practice. The bauxite mine, the transportation of the bauxite by rail and by barge, the renovation of the Paranam refinery and the construction of the Kabalebo hydroelectric dam are all integral parts of the same development program. According to IFC, impacts from all such associated facilities are part of a project's "area of influence" and must be considered in "an integrated way" in the ESIA.

According to the IFC:

Risks and impacts will be analyzed in the context of the project's area of influence. This area of influence encompasses, as appropriate: (i) the primary project site(s) and related facilities that the client (including its contractors) develops or controls, such as power transmission corridors, pipelines, canals, tunnels, relocation and access roads, borrow and disposal areas, construction camps; (ii) associated facilities that are not funded as part of the project (funding may be provided separately by the client or by third parties including the government), and whose viability and existence depend exclusively on the project and whose goods or services are essential for the successful operation of the project; (iii) areas potentially impacted by cumulative impacts from further planned development of the project, any existing project or condition, and other project-related developments that are realistically defined at the time the Social and Environmental Assessment is undertaken; and (iv) areas potentially affected by impacts from unplanned but predictable developments caused by the project that may occur later or at a different location.

IFC Performance Standard 1, para. 5: it is clear from this definition that the mine, the associated transportation projects (i.e. construction of rail lines and roads, and dredging of the river), changes to the refinery and construction of hydroelectric capacity are all either "associated facilities" or "project-related developments that are realistically defined". Thus, all of the risks and impacts from all of the components of the development must be considered and presented in an integrated way to affected communities. The segmented and fragmented way the companies

have presented the impacts from the different projects makes it difficult for communities to understand all of the impacts and to respond accordingly. It disempowers these communities in their efforts to participate effectively and to negotiate the required agreements with the companies. Before any further development of these associated projects proceeds, the ESIA's should be integrated more fully with significant attention on the cumulative impacts from all of the associated, planned and unplanned but predictable projects that will occur as part of bauxite production in West Suriname.

3.2 Updating and Revising the ESIA's and Associated Documents

The companies have recently stepped back from the Bakhuis project and the timing for construction and operation of the mines has been delayed. Depending on the amount of delay and on other factors, the ESIA's and associated documents will likely need to be revised or supplemented when the project is revived. Many of the assumptions, facts and conditions on which the project documents are based may change over time. For example, changes in the operating companies; the scope, location or scale of the mines or transportation routes; the affected communities; or the perceptions or knowledge about potential impacts or mitigation techniques could all lead to changes in the environmental and social impacts and possible mitigation. Moreover, international best practice and standards may also change. The IFC, for example, is about to launch a review of their Performance Standards. Experience is also being gained over time with the implementation of such concepts as free, prior informed consent; impact benefit agreements; and grievance mechanisms. For these reasons, any companies that re-engage in the Bakhuis project must commit to a full review and revision, if necessary, of the project documents after full stakeholder consultation.

Taking samples from drill holes
at Bakhuis



CHAPTER 5: EVALUATION OF THE DRAFT ENVIRONMENT AND SOCIAL IMPACT REPORT FOR THE MINING ASPECTS OF THE PROPOSED BAKHUIS MINING PROJECT

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At the request of Bureau VIDS (Association of Indigenous Village Leaders in Suriname), we evaluated the draft Environmental and Social Impact Report (ESIR) for the Mining Aspects of the Proposed Bakhuis Mining project. What follows are details regarding why the draft ESIR is insufficient to enable the Government of Suriname and other stakeholders to make an informed decision about the acceptability of the environmental and social costs of the proposed project.

BACKGROUND

BHP Billiton is proposing to strip mine large areas of what is presently a vibrant ecological asset: a portion of the world's diminishing store of tropical rainforest. No one is denying this fact. Chapter 13 of the draft ESIR states:

“The study area forms part of a vast forest continuum that extends across much of the Guiana Shield and accounts for approximately 25 % of the world's remaining tropical forests. The importance of the forests of the Guiana Shield on a global scale is well documented, both in terms of biodiversity and ecosystem services, as are current rates of deforestation.

“While being of immense ecological importance, the Bakhuis forests are not unique. While species diversity at Bakhuis is very high on a global scale, it is on a par with similar forests in the region. There are a significant number of species at Bakhuis that are endemic to the Guiana Shield region, but only a very few species are (potentially) restricted to Bakhuis itself. However, this does not detract from the fact that the study area represents a globally significant tract of rainforest with immensely valuable and important biophysical attributes.

“In many ways, the enormous scale of the study area distorts the overall assessment. Upon first examination the proportion of the exploration concession area that is predicted to be disturbed – approximately 5 % of the total area of 2 800 km² - does not appear to be significant, but when considered in absolute terms, clearing of 140 km² of rainforest is an extensive intervention. This figure may possibly be an underestimate if (as is expected) additional plateaus that were not drilled during the exploration programme are eventually shown to have economically viable bauxite and are also exploited. This represents a major land take for a single project, and in the context of the receiving environment, this is particularly significant. The location of the mine site is an important factor too: if the Bakhuis bauxite deposit was located on the outskirts of Paramaribo or elsewhere in the Coastal Plain, for instance, the consequences of this intervention would probably be considerably different.

“The examination of potential impacts in the context of the exploration concession area also assumes that the ~2660 km² of the concession area not mined or disturbed in other ways (e.g. haul roads, infrastructure) will remain undisturbed and afforded a degree of protection as part of the concession area. BMS has stated that it will pursue such a course as its overall approach to management of land within the concession area, but acknowledges that some

further limited disturbance may be possible if additional plateaus are subject to exploration drilling.

“The assessment of potential impacts considers the zone of influence of impacts, and for the majority of biophysical impacts, this is restricted to the exploration concession area or its immediate surrounds. If for any reason the mining licence (exploitation) area is smaller than the exploration concession area, it is reasonable to consider that the zone of influence will extend beyond the boundary of the eventual licence area. The lack of human receptors in the area generally reduces the significance of impacts on the physical environment (such as water and air quality). However, within that zone of influence, impacts on the biological environment are potentially devastating if unmanaged. This is particularly relevant for the potential impacts that will result from the sedimentation of rivers and creeks within the concession area (if stormwater is not adequately managed in the mining areas), although those effects are unlikely to be detectable beyond the boundaries of the exploration concession area.”

The project BHP Billiton is proposing is immense in scale. Section 5 of the draft ESIR states:

“In January 2003, the Government of Suriname signed a Memorandum of Understanding with BMS and Suralco, granting a 2 800 km² bauxite exploration concession in the Bakhuis Mountains. Since bauxite resources were only found in approximately 3% of the exploration concession, the remaining 97% of the concession area will not be mined as part of this project. Mining infrastructure such as crushers and roads connecting the dispersed plateaus will, however, be placed on some of this area. It is estimated that approximately 5% of the exploration concession, or 140 km², will be physically disturbed by activities related to the mining of Bakhuis (personal communication, Keersema, 2007).”

The concession area of 2800 km² is nearly the size of the state of Rhode Island. The method that BHP Billiton proposes to use would result in the complete removal of 140 km² of tropical forests distributed throughout the concession area, as described in Chapter 5 of the draft ESIR:

“As the bauxite in Bakhuis is typically located close to the surface, it is proposed to mine the bauxite using a conventional open pit panel mining method in combination with an adapted contour mining method and will involve the following activities at the individual mining voids: 1. Site preparation: a. Timber harvesting and vegetation clearing; b. Overburden stripping (including harvesting of any topsoil); and c. Installation of drainage and sediment control measures.”

Because the ecological functioning of tropical forests are dependent of the integrity of adjacent areas, clearing 140 km² of tropical forests in this manner would have impacts that would extend throughout the concession area far beyond the areas that are cleared.

1.0 Draft ESIR Insufficiency #1: The draft ESIR fails to provide decision-makers with adequate information about biological assets that might be lost if the project goes forward

At first glance, the draft EISR for the mining aspects of the Bakhuis bauxite project seems to hold the promise of presenting to decision-makers adequate information about the biological assets that would be removed by this project. Chapter 6 of the draft ESIR providing information about the biophysical baseline spans 75 pages. The baseline studies for flora, invertebrates, reptiles, birds and mammals, included as appendices to the draft ESIR span a further 487 pages.

However, close inspection of these documents reveal that BHP Billiton has failed to provide decision-makers with adequate information about what ecological assets might be lost if the project is approved. BHP Billiton's failure to provide adequate baseline information rests on the following methodological flaws.

1.1 The draft ESIR failed to assess biological characteristics of large stretches of the concession area

Chapter 6 of the draft ESIR summarizes its characterization of the biological assets that would be impacted by the proposed project as follows:

“The fauna and flora of the Bakhuis area is diverse, and is comparable with other species-rich areas in the Neotropics. Levels of endemism are generally (relatively) low, but this was not unexpected since Suriname itself has relatively few endemic species and endemism in the Guiana Shield tends to be at a regional scale. It should be noted that the southern section of the concession area was generally less well studied than the northern section, for historical reasons mainly related to access, and it is anticipated that the levels of endemism and new species may increase in this area (studies of other plateau areas in Suriname have indicated that endemism increases with altitude). A number of species and/or sub-species (potentially) new to science were found during the study, and these may be restricted to the Bakhuis area. However, the interior of Suriname as a whole is poorly studied, so this would be difficult to ascertain with certainty.”

We believe this is a gross understatement about how poorly the project proponent studied the concession area and, therefore, the risk this project proposes to the survival of rare and endangered species that might depend on the present-day ecological integrity of the concession area.

The specialists studies on which the draft ESIR are more frank about what the project proponent does not know about the area that would be impacted by the environment. The specialist study on vegetation states:

“Due to the very large area covered by the concession (2800 km²), whatever effort is spent on botanical and vegetation assessments and sampling, vast areas, remote from any track will remain unexplored. The transect sampling grid established throughout the area took preliminary habitat mapping into account to ensure a significant representation of habitat and species associations, but it remains possible that some distinctive features of the vegetation in restricted habitats or inaccessible areas are not sampled in proportion to its actual extent.

“In the same way, despite systematic collection and identification of specimens of every plant species encountered during 3 field surveys in three seasons and the complementary identification of trees and lianas species by expert field dendrologists, the vascular plant species list cannot be considered a complete list of the flora of the Bakhuis concession. However, it is considered to be representative of the high floristic diversity and the actual proportion of rare and endemic plant species present in the area.”

The map on page 12 of the specialist study on vegetation reveals how little of the concession area was directly examined. The specialist study on birds states:

“For transect surveys, the optimal design would involve random placement of transects and survey effort proportional to the extent of different habitats in the study area. In practice, this was not possible. Factors affecting the design and results of the study are presented below.

“There was insufficient prior knowledge of the distribution of habitats within the concession area to inform transect placement. The selected survey areas were chosen to maximize the distance between survey camps; within each survey area selection of transect locations was based primarily on ease of access. Transects were initiated on roads within a 45-minute walk from each survey camp, and on whatever BMS transects were accessible within 30 minutes by vehicle from the camps; they covered whatever habitats happened to exist at those locations.”

Limiting field surveys to transects initiated on roads within a 45-minute walk from each survey camp necessarily would exclude vast areas of bird habitat because a large extent of the concession area is roadless. The map on page 9 of the specialist study on bird reveals how little of the concession area was directly examined.

The specialist study on medium and large mammals states:

“Access to areas deep in the south was restricted by the rugged topography, poor condition of the road, and choice of road course.”

The map on page 7 of the specialist study on medium and large mammals reveals how little of the concession area was directly examined. The area directly examined for the presence and abundance of medium and large mammals is perhaps the most limited of all the major specialist studies considering that the 12 camera traps were located in close proximity to roads within only 4 of the 28 concession areas, with 8 of these 12 camera traps located in just 2 concession areas.

We grant that the concession area is vast and it would require substantial resources to properly characterize the biological assets that it contains. However, the large size of the concession area cannot be an excuse to provide decision-makers with an adequate characterization of the existing environment to understand what is at risk if the project is approved, especially when methodology to guide such efforts is widely available and well-established in the literature.

1.2 Camera traps for assessing the abundance and distribution of large mammals were improperly deployed

The draft ESIR relies heavily on the use of camera traps to assess the baseline abundance and distribution of large mammals. However, use of the camera traps was subject to the following flaws.

- Camera traps were restricted to “accessible areas,” which seem to be within only 4 of the 29 identified areas within the concession area, and in 2 of the 5 proposed envelopes. Additionally, the camera traps were not systematically deployed across the study area, which limits the rigor of any conclusions that could be drawn.¹
- From figure 2-1 in Volume 2 of the large mammal specialist study, it is apparent that cameras were placed on or in close proximity to roads. Locating camera traps near disturbed area could potentially bias results towards species more tolerant of human disturbance or fragmentation.²
- The use of camera trapping is controversial, primarily because it does not estimate the probability of detection.³ A systematic approach to arranging camera traps, as well as more rigorous analysis of the resulting data, is necessary to make inferences about population abundance. The reports do not indicate in which habitats the camera traps located. Similarly, different analyses may need to be employed if a population is assumed to be closed or open.⁴ The reports do not indicate in which habitats the camera traps were located.

¹ Karanth, K.U. (1995) “Estimating tiger (*Panthera tigris*) populations from camera-trap data using capture-recapture models.” *Biological Conservation* 71:333–338; Karanth, K.U. and Nichols, J.D. (2002) “Monitoring tigers and their prey: A manual for researchers, managers and conservationists in Tropical Asia.” Centre for Wildlife Studies BANGALORE India.; Silver, S. (2004) “Assessing jaguar abundance using remotely triggered cameras.” Wildlife Conservation Society. <http://www.savingwildplaces.com/media/file/SilverJaguarCamera-TrappingProtocol.pdf>

² Kelly, M. J. and E. L. Holub (2008) “Camera Trapping of Carnivores: Trap Success Among Camera Types and Across Species, and Habitat Selection by Species, on Salt Pond Mountain, Giles County, Virginia.” *Northeastern Naturalist* 15:249-262.

³ Rowcliffe et al. (2008) “Estimating animal density using camera traps without the need for individual recognition.” *Journal of Applied Ecology*, 45:1228-1236.

⁴ Trolle, M. and Kerry (2003) “Estimation of Ocelot density in the Pantanal using capture-recapture analysis of camera-trapping data.” *Journal of Mammalogy*, 84:607-614

- According to the draft ESIR, tall meso-zeric and access to both tall mesic and low meso-xeric forest are the two more frequently occurring habitat types in the project area. If the locations of the camera traps do not represent the dominant habitat types in the study area, then this limits any inferences that can be made about the abundance and distribution of large mammals.
- The reports do not indicate the how the spacing of the camera traps compare to the homerange size of each species so that every animal has at least some chance of being photographed. If the spacing between camera traps are not small enough to capture the homerange of individuals, then it is not possible to say with any certainty what the abundance, or even species richness might be.⁵
- The report uses a very coarse 'recapture filter' to estimate species abundance. Many different models are available to generate abundance estimates based on the number of individual animals captured and the proportion of recaptures that are more rigorous.⁶ Each models differs in assumed sources of variation in capture probability, including variation among individuals (e.g., based on sex, age, ranging patterns, dominance, activity), variation over time, behavioral responses to having been captured, and various combinations of the previous factors.
- The draft ESIR does not take into account the potential loss of prey base or vegetation food sources when assessing impacts to mammals. To assess direct and indirect impacts, it is critical to determine and monitor the health of the prey base (or vegetation sources) to ensure that the integrity of the food chain is preserved.⁷ The draft ESIR promises to "undertake phenological studies to ensure that plant species used in rehabilitation processes provide the required food supplies for medium and large mammals throughout the year." This approach neglects carnivores specifically, but is also exceedingly vague. It is not possible to know 'required food supplies' without knowing the abundance, distribution and density of medium and large mammals.

⁵ Silver, S. (2004) "Assessing jaguar abundance using remotely triggered cameras." Wildlife Conservation Society. <http://www.savingwildplaces.com/media/file/SilverJaguarCamera-TrappingProtocol.pdf>

⁶ Ibid.; Kelly, M. J. and E. L. Holub. (2008) "Camera Trapping of Carnivores: Trap Success Among Camera Types and Across Species, and Habitat Selection by Species, on Salt Pond Mountain, Giles County, Virginia." *Northeastern Naturalist*, 15:249-262.

⁷ Pimm, S.L. (1991) "The Balance of Nature." University of Chicago Press, Chicago, IL.

2.0 Draft ESIR Insufficiency #2: The assessment of impacts to biological assets rests on faulty assumptions

2.1 It is inappropriate to assume that medium and large mammals are less habitat-specific than smaller species in all cases

Page 9-89 of the draft ESIR states:

“Medium and large mammals are less habitat-specific than smaller species and none of the species present are restricted to particular habitats or particular areas of the concession area, with the exception of aquatic species”

This is not clearly supported by the literature. Though medium and large mammals may actually travel through a broad range of habitat types, they may require or specialize in a specific habitat for certain activities, such as breeding or acquiring food resources and thus their niche may be quite restricted. While niche breadth may correlate negatively with sensitivity to habitat fragmentation in some cases, body size must correlate positively with niche breadth in order for assumptions in the draft ESIR to hold. For example, contrary to the claims of the draft ESIR, scientists found that mesopredators had a larger niche breadth than did larger carnivores in their study of savanna habitat in Venezuela.⁸ If the claim that larger mammals are less habitat-specific cannot be substantiated by the literature, then many of the assumptions in the draft ESIR must be re-examined. Furthermore, habitat selection studies are then required to understand the true extent of the impacts of the proposed project.

2.2 It is inappropriate to assume that habitat preferences can be assessed without looking at patterns of selection and presence/absence or use/availability data

Without knowing the specific habitat types in which animals occurred, with what frequency, and the extent of those patches, it is difficult to assess habitat preference or even use. Presence data do not provide information on selection or preference, especially when we do not know where the animals are not located. One way to determine habitat selection in a more rigorous manner with ‘use/availability’ data (i.e. when presence/absence cannot be determined) is through the use of multiple logistic regression models that assign coefficients to habitat characteristics associated with use, also called ‘resource selection functions.’ Manly et al. (2002) provide a good resource for this approach and it is commonly used to identify critical habitat for endangered species.⁹ This would require that the draft ESIR characterize habitat types at locations where animals were detected, which should be within their ability to determine despite the noted limitations. Without this, or a similar approach, it is impossible to assess habitat preference or selection.

⁸ Laura E. Farrell, J. R. M. E. S. (2000) “Dietary separation of sympatric carnivores identified by molecular analysis of scats.” *Molecular Ecology*, 9:1583-1590.

⁹ Manly BFJ, McDonald LL, Thomas DL, McDonald TL, Erikson WP (2002) “Resource selection by animals: statistical design and analysis for field studies,” 2nd edn. Kluwer Academic Publishers, Dordrecht, the Netherlands

3.0 Draft ESIR Insufficiency #3: The assessment of impacts to biological assets fails to adequately consider responses to habitat fragmentation

There is a lack of consideration of specific factors that are often associated with habitat fragmentation including: genetic isolation of populations which can lead to inbreeding, limitation of dispersal and migration, consequent extinction of local populations (leading to meta-population dynamics, with potential for source-sink populations), and the decline of populations of animals requiring larger territories are the most common problems connected with fragmentation of forests and other components of the environment. How will this be specifically addressed by mitigation?

For example, when habitat is fragmented, it is often the case that meta-population dynamics or population dynamics in general can be altered in less obvious ways. The following publication explains a way in which species may be lost due to fragmentation:

“Habitat destruction is the major cause of species extinction. Dominant species often are considered to be free of this threat because they are abundant in the undisturbed fragments that remain after destruction. Here we describe a model that explains multispecies coexistence in patchy habitats⁴ and which predicts that their abundance may be fleeting. Even moderate habitat destruction is predicted to cause time-delayed but deterministic extinction of the dominant competitor in remnant patches. Further species are predicted to become extinct, in order from the best to the poorest competitors, as habitat destruction increases. More-over, the more fragmented a habitat already is, the greater is the number of extinctions caused by added destruction. Because such extinctions occur generations after fragmentation, they represent a debt—a future ecological cost of current habitat destruction.”¹⁰

4.0 Draft ESIR Insufficiency #4: The draft ESIR fails to quantify impacts on the size and distribution of populations of endangered species and assess whether they will remain viable

There is a growing consensus that large mammals are predisposed to higher extinction rates than smaller mammals.¹¹ This is usually a combination of both intrinsic traits of a species (population density, neonatal mass, and litters per year) and environmental factors.¹² Yet, there is nothing in this plan that indicates that this will be taken into consideration. For example, the intrinsic traits of a species are important predictors of extinction. So monitoring these traits should be a part of a comprehensive monitoring program to mitigate extinction risk.

¹⁰ Tilman, D., R. M. May, C. L. Lehman, and M. A. Nowak. (1994) “Habitat destruction and the extinction debt. *Nature* 371:65-66.

¹¹ Cardillo et al. 2005.

¹² Ibid.

The fact that population size is a determinant of extinction risk is well established and has been demonstrated in many species across a broad range of taxa¹³ In order to ensure persistence of mammal species, a viability analysis is recommended to predict population trajectories, extinction (or quasi-extinction) risks, and minimum viable population sizes. If data from the specific populations in the concession area are not available, they may be adapted from similar species in other areas. Page 8 of volume 2 of the draft ESIR states

“The phrase less habitat specific refers to the fact that the large mammals expected to occur in the Bakhuis Concession Area also occur throughout the Guiana Shield from eastern Venezuela in the west to French Guiana in the east, and notably throughout much of the Amazon basin.”

If this is the case it should be possible, or at least an attempt should be made, to obtain species data that would aid in conducting a viability analysis for all of the species in the study area. This method is widely applied and is used in many conservation programs.¹⁴

Long-term studies, relative to the generation time of the species, are required to estimate true extinction risks. This is especially true for large mammals. Short-term studies may drastically underestimate true extinction risk¹⁵ This is because fluctuations in populations over time are autocorrelated so random samples will underestimate process variance.¹⁶ Therefore, short-term studies, in the absence of rigorous comparisons, are inadequate to understand and predict the impacts of the proposed project as suggested.

5.0 Draft ESIR Insufficiency #5: The draft ESIR inappropriately relies on the success of proposed mined land reclamation to restore biological functions of mined areas

The draft ESIR concludes that many impacts of the project would of VERY HIGH or HIGH significance but for the implementation of mitigation measures. One mitigation measure that BHP Billiton would rely on, repeated at least 15 times in Chapter 9 of the draft ESIR is to ‘rehabilitate disturbed areas as rapidly as possible’

Serious questions exist about whether it is at all possible, even with the best intentions, to restore biological functions of the tropical forests of the Bakhuis Mountains that would be stripped mined or otherwise disturbed by BHP Billiton.

The project proponent has released a draft Conceptual Closure and Rehabilitation Plan (CCRP) that states:

¹³ Reed et al. (2003)

¹⁴ Boyce (1992) ; Beissinger and Westphal (1998); Caswell (2001); Morris and Doak (2002); Mills et al. (2007)

¹⁵ Reed et al. 2003

¹⁶ Beissinger and Westphal 1998, Morris and Doak 2002

“The long-term goal of the rehabilitation plan is to create conditions that facilitate the eventual recovery of biodiversity in all the reclaimed areas through a natural process of ecological succession, whilst committing every effort to maximising the actual rate of recovery of growth in biodiversity during the period when the area is under control of BMS.”

The project proponent has not provided any examples of successful rehabilitation of the type of complex tropical forest ecosystems that would be strip mined under this proposal. To be fair, there are very few studies about the efficacy of restoring biodiversity to areas subject to bauxite mining. By far and away, most of the available studies focus on the efforts of Alcoa to reclaim areas of Western Australia subject to bauxite mining.¹⁷ Despite the fact that each of these articles was published with support from Alcoa, they do not paint a rosy picture: Alcoa made several mistakes based on a lack of knowledge of ecosystem function that resulted in lack of adequate ecosystem restoration. For example, the 1995 paper by McChesney et al. shows that Alcoa failed to appreciate that removal of a tree canopy makes restoration of pre-mining forest extremely difficult because the micro-climate is fundamentally different after tree clearing. Furthermore, in the 2006 paper by Norman, et al. (June 2006) Alcoa's scientists admit that 14 years after restoration efforts began, forested lands at Alcoa's rehabilitated mine at Jarrahdale, Western Australia, have still not attained the degree of diversity and ecosystem function as comparable forests from non-mined areas. What follows is a quote from the abstract of this article:

“Vegetation composition in rehabilitated areas did not become more similar to the unmined forest during the 14 years since seeding, instead strongly reflected the initial species mix.”

¹⁷ 1. Melanie A Norman , John M Koch , Carl D Grant , Tim K Morald , Samuel C Ward (Jun 2006) “Vegetation Succession After Bauxite Mining in Western Australia,” *Restoration Ecology*, Volume 14, Issue 2, Page 278-288; Carl D. Grant (Mar 2006) “State-and-Transition Successional Model for Bauxite Mining Rehabilitation in the Jarrah Forest of Western Australia,” *Restoration Ecology*, Volume 14, Issue 1, Page 28-37; John M. Koch, Jennifer Richardson, Byron B. Lamont (Jun 2004) “Grazing by Kangaroos Limits the Establishment of the Grass Trees *Xanthorrhoea gracilis* and *X. preissii* in Restored Bauxite Mines in Eucalypt Forest of Southwestern Australia,” *Restoration Ecology* Volume 12, Issue 2, Page 297-305; Owen G. Nichols, Flora M. Nichols (Sep 2003) “Long-Term Trends in Faunal Recolonization After Bauxite Mining in the Jarrah Forest of Southwestern Australia,” *Restoration Ecology*, Volume 11, Issue 3, Page 261-272; C. D. Grant, W. A. Loneragan (Mar 2003) “Using Dominance-Diversity Curves to Assess Completion Criteria After Bauxite Mining Rehabilitation in Western Australia,” *Restoration Ecology* Volume 11, Issue 1, Page 103-109; S. C. Ward, J. M. Koch, G. L. Ainsworth (Mar 1996) “The Effect of Timing of Rehabilitation Procedures on the Establishment of a Jarrah Forest After Bauxite Mining,” *Restoration Ecology*, Volume 4, Issue 1, Page 19-24; Carl D. Grant, David T. Bell, John M. Koch, William A. Loneragan (Jun 1996) “Implications of Seedling Emergence to Site Restoration following Bauxite Mining in Western Australia,” *Restoration Ecology*, Volume 4, Issue 2, Page 146-154; 7. J. M. Koch, S. C. Ward, C. D. Grant, G. L. Ainsworth (Dec 1996) “Effects of Bauxite Mine Restoration Operations on Topsoil Seed Reserves in the Jarrah Forest of Western Australia,” *Restoration Ecology*, Volume 4, Issue 4, Page 368-376; Catherine J. McChesney, John M. Koch, David T. Bell (Jun 1995) “Jarrah Forest Restoration in Western Australia: Canopy and Topographic Effects,” *Restoration Ecology* Volume 3, Issue 2, Page 105-110; S. J. Simmonds, J. D. Majer, O. G. Nichols (Dec 1994) “A Comparative Study of Spider (Araneae) Communities of Rehabilitated Bauxite Mines and Surrounding Forest in the Southwest of Western Australia,” *Restoration Ecology* Volume 2, Issue 4, Page 247-260.

Another paper published in 2006 by Grant claims that Alcoa is succeeding with its efforts to restore the environment at its Western Australian bauxite mines. This article states that:

“Alcoa World Alumina Australia has been rehabilitating bauxite mines in the jarrah (*Eucalyptus marginata*) forest of western Australia for more than 35 years. ... Of the 6,429 ha of native species rehabilitation undertaken between 1991 and 2002, 98% is on or above the desired successional trajectory.”

However, the article uses the following definition of “desirable” to evaluate its restoration effort:

“Characteristics of desired states and transitions: "Sapling to pole-sized eucalypts with dense *Acacia* understorey, high fuel loads, three-tiered vegetation structure, and moderate species richness (50–80% of forest controls).”

Greater than fifty percent species richness compared to pre-mining conditions is a dubious standard to achieve. Moreover, Figure 5 of this paper (on page 34) shows that as of the latest measurements (2001) the average species richness of restored forests at Alcoa's Jarrahdale bauxite mine averaged only 60% of the species richness of unmined forests. All this needs to be considered in the context that the jarrah forests of Western Australia are far simpler ecosystems (less species richness) than the tropical forests of the Bakhuis Mountains in Suriname.

The Government of Suriname and other interested stakeholders should be highly critical of unsubstantiated claims that rehabilitating disturbed areas as rapidly as possible would ever bring about the restoration of biodiversity to the intricately complex tropical forest ecosystems that would be cleared if this project were approved.

Stream, Bakhuis



CHAPTER 6: MISSING PIECES – AN ANALYSIS OF THE DRAFT ENVIRONMENTAL AND SOCIAL IMPACTS REPORTS FOR THE BAKHUIS BAUXITE PROJECT, WEST SURINAME

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1.0 Introduction

1.1 Background

The Bakhuis Mountains of West Suriname contain reserves of bauxite estimated to be the ninth largest in the world.¹ Under the Bakhuis Bauxite Project, BHP Billiton and Alcoa intend to mine bauxite in a concession area of 2800km².² Related activities will entail transporting the bauxite by rail to the nearby Lokono Indigenous communities of Apoera, Section and Washabo, and then barging the raw product down the Corantijn river, along the Atlantic, up the Suriname river to the Paranam refinery for processing into alumina. The Corantijn River and Suriname River will first need to be dredged to enable the transportation of the bauxite³, and the Paranam refinery adapted to the lower grade bauxite from Bakhuis. Current plans are for the alumina to be exported for smelting. Nonetheless the Government of Suriname has indicated it is very interested in pursuing an integrated aluminum industry, and has taken actions that show it is seriously considering large-scale hydroelectric development in West Suriname (the Kabalebo Project) to fuel a smelter that will enable processing of the bauxite in Suriname.⁴ Further, studies and consultations are currently underway for the establishment of large-scale infrastructure (the IIRSA project), including roads that will connect Suriname to Guyana via a bridge (in the vicinity of the Indigenous villages of Apoera in Suriname and Orealla in Guyana), to facilitate the movement of goods related to bauxite mining across the Guyanas, and provide a road link for

¹ Mine ESIR, p.5-2, 5.2.2.1. In 2005, the US Geological Survey estimated that Suriname's Reserve Base (not yet proven) is 600,000,000 metric dry tons (in Mine ESIR, p. 5-3 chart). At today's prices, this translates to income (not including costs) of around 325 million USD per year over the 50-year life cycle of the mine, or a total of \$16.2 billion USD: Mineral commodity summary 2008, <http://minerals.usgs.gov/minerals/pubs/commodity/bauxite/>.

² Current estimates are that "approximately 5% of the exploration concession, or 140km², will be physically disturbed by activities related to mining of Bakhuis" (Keersemaeker cited in Mine ESIR, p. 5-12, 5.5.1.3.)

³ In the case of the Suriname river, the dredging will be to enable larger ships to transport the refined bauxite for export.

⁴ The vision for an integrated aluminum industry in the West was originally proposed in the 1970s, and has recently become a highlight in government policy statements and actions. For example, the Bakhuis and Kabalebo projects feature prominently in the President R.R. Venetiaan's 2005-2009 multi-year plan (Venetiaan, R.R. November 23, 2005. Suriname Regeringsverklaring 2005-2009, speech at the National Assembly), in regional discussions of the Technical Executive Group of the Venezuela-Brazil-Guyana-Suriname Hub of IIRSA (Regional Infrastructure Integration in South America/Integración de la Infraestructura Regional en Sur América) (See www.iirsa.org), and in ongoing national media reports. Indeed, In August 2007, national newspaper *De Ware Tijd* reported on a Chinese delegation to Suriname that included members of the China Development Bank, Chinalco and Sino-Hydro, all of whom have expressed interest in the potential hydro project in West Suriname (Cairo 2007). The Chinese delegation also visited the communities of west Suriname, leaving behind Sin-Hydro T-Shirts (Pers Comm., Chief Aroepa, January 2008). Most recently Suriname's interest in pursuing an integrated aluminium industry was the subject of a July 2008 article in Caribbean Net News (Cairo 2008), as well as in an October 11 article in *De Ware Tijd* "Toekomst Billiton in gevaar." Indeed, negotiations have currently been stopped with BHP Billiton and Suralco regarding Bakhuis, as the government searches for other companies that might be interested in putting in place an integrated aluminum industry hydroelectric development, with interest expressed by China's Chinalco and Switzerland's Glencore.

other forms of trade running from Brazil through the Guyanas to Venezuela. Conservation offsets for the Bakhuis Bauxite Project include consideration of the Kaboerikreek Protected Area, adjacent to the community of Washabo.

These proposed activities overlap with the traditional territories (both land and water) of the Indigenous Peoples of West Suriname, including the Lokono communities of Apoera, Section and Washabo; and Guyanese Lokono communities living along the Corantijn who also hunt and fish in Suriname. Other affected communities include the Trio settlement of Zandlanding located in Apoera, whose livelihood activities will be affected, as well as Indigenous and Maroon villages downstream of Bakhuis in the Wayambo area. Should the hydroelectric plans become a reality, the traditional territories of Trio communities and associated Indigenous Peoples in Suriname's Interior will also be severely affected. The barging along the Atlantic and in the Suriname River may also affect other communities using these areas for livelihood purposes.

BHP Billiton and Alcoa have recently submitted to the Government of Suriname and Indigenous communities of West Suriname the environmental and social impact assessment (ESIA) documentation they believe will lead to the Government's endorsement of the Bakhuis Bauxite Project, and to the potential signing of an Agreement between the companies and government in the near future, with November 25th rumoured as the potential agreement-signing date. This date – and indeed, BHP Billiton's and Alcoa's involvement – is currently and somewhat unexpectedly being revised, as the Government casts its net for other potential companies interested in putting in place not only a bauxite mine, but an integrated aluminum industry with the associated hydroelectric dam and smelter.⁵

Nonetheless, with the support of the Association of Indigenous Village Leaders in Suriname (Bureau VIDS), the Indigenous communities of West Suriname are striking an independent Panel of Experts (Indigenous Peoples Panel of Experts -- IPPoE) to review the documentation submitted by the BHP Billiton and Alcoa, and provide concrete advice to the traditional leadership regarding the substance and process of the ESIA's. This review will stand the communities in good stead whether or not BHP Billiton or Alcoa – and/or other companies – are involved in the final Bakhuis Mine Project and related developments. Indeed, to date there have been serious flaws with regards to the ESIA process and substance, and the review panel analysis will help illuminate these and measures to address them.

1.2 Purpose

The North-South Institute (NSI) has undertaken several projects, in collaboration with Bureau VIDS, to support the affected Indigenous communities in West Suriname.⁶

⁵ See, October 11, 2008 article in *De Ware Tijd* "Toekomst Billiton in gevaar."

⁶ These include a project funded by Canada's International Development Research Centre "Suriname Pilot Project" (2004-2006) and a project funded by the Inter-American Development Bank "Indigenous Peoples and Mining in West Suriname: Building Community Capacity and Encouraging Dialogue" (2006-2008). Project descriptions and documents are available at www.nsi-ins.ca (with the exception of the final report of the IDB project, which the Bank has decided not to make publicly available).

In the spirit of collaboration, the purpose of this brief is to provide an initial broad-brush analysis of the environmental and social impact reports (ESIRs) produced by the company consultants, with a view to raising key concerns and questions, and providing constructive commentary. The intention is to complement the in-depth analysis that the experts on the IPPoE will provide. To this end, the brief will identify what is missing in the ESIA in general, focussing largely on the National Institute for the Environment and Development's (NIMOS) draft ESIA guidelines and company policies, but touching also on international performance standards and jurisprudence.

The brief is based on a close reading of:

- The Environmental and Social Impact assessment of Mining Aspects of the Proposed Bakhuis Bauxite Project: Draft Environmental and Social Impact Report, Volume 1 (Mine ESIR)⁷
- The Environmental and Social Impact assessment of Transport Aspects of the Proposed Bakhuis Bauxite Project: Draft Environmental and Social Impact Report, Volume 1 (Transport ESIR)⁸
- Draft Conceptual Closure and Rehabilitation Plan (CCRP)⁹
- Draft Community Engagement Plan: West Suriname Communities (CEP)¹⁰
- Draft Environmental Management and Monitoring Plan Framework for Construction and Operations Phases (EMMP)¹¹
- Public Consultation and Disclosure Plan (PCDP)¹²

The brief **does not** include a review of the Preliminary Public Consultation and Disclosure Plan for the Corantijn River Dredging Project Environmental and Social Impact Assessment (SRK Consulting, February 2008), or documentation pertaining to the Suriname River Dredging Project and the Paranam Refinery ESIA, which while related, are omitted from the suite of documents the companies are submitting for Government approval of the Bakhuis Bauxite Mine Project.¹³

1.3 Organization

The brief is organized as follows:

- Section 2 examines issues pertaining to Indigenous rights
- Section 3 analyzes issues concerning the substance and process of the ESIA's
- Section 4 considers draft management plans related to the proposed Bakhuis Bauxite Mine
- Section 5 makes concluding observations

⁷ Mine ESIR, SRK Consulting (2008a).

⁸ Transport ESIR, SRK Consulting (2008b).

⁹ CCRP, SRK Consulting (2008c).

¹⁰ CEP, SRK Consulting (2008d).

¹¹ EMMP, SRK Consulting (2008e).

¹² PCDP, SRK Consulting (2008f).

¹³ Current company plans are to have the draft dredging ESIR available for comment and completion in early 2009, with dredging expected to begin in March 2009 (Personal Communication, Andy Witcomb, BHP Billiton, HSE Manager Projects, October 8, 2008).

2.0 Indigenous Rights

The environmental and social impact reports do not address sufficiently the area of Indigenous and human rights. Salient gaps include:

2.1 Lack of a clear definition of Indigenous Peoples that explicitly recognizes Indigenous Peoples' rights to define their own membership and the fundamental criterion of self-identification.

Discussions in the ESIRs currently conflate Maroon and Indigenous Peoples,¹⁴ and also appear to negate the importance of indigeneity. For example, a footnote in the socio-economic baseline study for the Transport ESIR states that:

“The distinction between indigenous and non-indigenous people is at times nebulous, since intermarrying between the two groups has been prevalent over a long period of time. In Ressort Kabalebo, the notion ‘indigenous’ is used in an abstract sense and not always easily applicable in terms of specific individuals. When this is attempted it can lead to problems of identity and disruption of community cohesion. It has led to lack of unity and consequent lack of organization in the local communities.”¹⁵

But given the special rights of Indigenous Peoples and Maroons, as recognized in international law and jurisprudence, providing a clear definition that recognizes the fundamental criterion of self-identification is critical for their protection. Moreover, this definition will influence any future agreement between the companies and Indigenous communities, in which there will need to be stipulation of employment and other benefits accruing to local Indigenous Peoples, rather than local residents (contrary to current language in the ESIRs).¹⁶ **The ESIRs and subsequent negotiations should include explicit reference to Indigenous Peoples rights to define their own membership and the fundamental criterion of self-identification of Indigenous Peoples (as per the United Nations Declaration on the Rights of indigenous Peoples) and use the accepted United Nations' working definition of Indigenous Peoples (see Box 1).**

¹⁴ At one point the terms Indigenous and Maroons are conflated when a socio-economic study states that: “[Sipaliwini district] is inhabited mainly by Arowak Amerindians and Kwinti Maroons, who are acknowledged to be indigenous peoples” (Transport ESIR, 10-3 [10.3.1]).

¹⁵ Transport ESIR, 10-3, footnote 2.

¹⁶ Mine ESIR, 5-34, footnote 7, states: “BMS defines local residents as persons who are: Current, legitimate residents of the local communities of Apoera Dorp, Apoera Plan, Washabo and Sandlanding; Surinamese residents.” The special rights of Indigenous peoples trump those of other residents and therefore preference should be given to local Indigenous people rather than simply local residents as BMS suggests.

Box 1:

**UN Working Definition of Indigenous Peoples
& UN Declaration on the Rights of Indigenous Peoples Articles Concerning Self-identification**

Indigenous communities, peoples and nations are those which, having a historical continuity with pre-invasion and pre-colonial societies that developed on their territories, consider themselves distinct from other sectors of the societies now prevailing on those territories, or parts of them. They form at present non-dominant sectors of society and are determined to preserve, develop and transmit to future generations their ancestral territories, and their ethnic identity, as the basis of their continued existence as peoples, in accordance with their own cultural patterns, social institutions and legal system.

This historical continuity may consist of the continuation, for an extended period reaching into the present of one or more of the following factors:

- a) Occupation of ancestral lands, or at least of part of them;
- b) Common ancestry with the original occupants of these lands;
- c) Culture in general, or in specific manifestations (such as religion, living under a tribal system, membership of an indigenous community, dress, means of livelihood, lifestyle, etc.);
- d) Language (whether used as the only language, as mother-tongue, as the habitual means of communication at home or in the family, or as the main, preferred, habitual, general or normal language);
- e) Residence on certain parts of the country, or in certain regions of the world;
- f) Other relevant factors.

On an individual basis, an indigenous person is one who belongs to these indigenous populations through self-identification as indigenous (group consciousness) and is recognized and accepted by these populations as one of its members (acceptance by the group).

This preserves for these communities the sovereign right and power to decide who belongs to them, without external interference

**Excerpts from the UN Declaration on the
Rights of Indigenous Peoples**

Article 3 — Indigenous peoples have the right to self-determination. By virtue of that right they freely determine their political status and freely pursue their economic, social and cultural development.

Article 9 — Indigenous peoples and individuals have the right to belong to an indigenous community or nation, in accordance with the traditions and customs of the community or nation concerned. No discrimination of any kind may arise from the exercise of such a right.

Sources: UN Doc. E/CN.4/Sub.2/1986/7 and Add. 1-4 paras, 379-382; UN Declaration on the Rights of Indigenous Peoples

2.2 No detailed reference to Suriname's international obligations and commitments regarding human rights.

The draft ESIRs currently list only select international agreements regarding environmental management and Indigenous Peoples that Suriname is signatory to, including among others, the United Nations Convention on Biological Diversity (1992), the American Convention on Human Rights (1969) and the United Nations Declaration on the Rights of Indigenous Peoples (2007). However, aside from the limited comments on these agreements,¹⁷ and the short discussion on land rights in setting the regulatory context¹⁸, there is no discussion of what these agreements mean in practice with regards to the proposed developments in West Suriname. Nor is there an explanation of how the companies will address the rights affirmed in these instruments given their explicit policy commitments to uphold human rights and Indigenous Peoples' traditional rights

In addition, there is no reference to either decisions concerning Suriname by the Committee for the Elimination of Racial Discrimination (CERD), or the 2007 Saramaka People judgment of the Inter-American Court of Human Rights (IACHR), which is binding on Suriname¹⁹. In Suriname law, international law takes precedence over national law and therefore this jurisprudence must be considered part of the overall applicable legal and regulatory framework. These are serious omissions which must be rectified in the final ESIR.

CERD has issued several Bakhuis-relevant decisions to Suriname containing concrete recommendations to ensure the country meets its obligations to Indigenous Peoples and Maroons as a signatory to the United Nations Convention for the Elimination of Racial Discrimination. These decisions explicitly address the issue of resources extraction and mining, and range from rewriting the Draft mining law so it does not discriminate against Indigenous Peoples, to producing a framework law for the rights of Indigenous Peoples, to implementing free, prior and informed consent around projects affecting Indigenous and Tribal Peoples (see Box 2). Decision 1(69) (quoted below) is an indirect reference to the Bakhuis Bauxite Project.

¹⁷ Section 3.2.2. of the Mine ESIR (p. 3-2), or section 3.2.2 of the Transport ESIR (pp. 3-3, 3-4).

¹⁸ Mine ESIR, p. 3-14, 3.2.5.

¹⁹ There is some discussion of events and decisions prior to the 2007 *Saramaka People* judgment in 3-15 of the Mine ESIR.

Box 2:

**Summarized Urgent Action Decisions by CERD concerning
Indigenous and Tribal Rights and Mining in Suriname**

18 August 2005: Decision 1 (67):

- Drew attention of the State party to its General Recommendation 23 (1997) on the rights of indigenous peoples, urging the State party to ensure the compliance of the revised draft Mining Act with the International Convention on the Elimination of All Forms of Racial Discrimination, as well as with the Committee's 2004 recommendations. In particular, the Committee urges the State party to:
 - ◊ Ensure legal acknowledgement of the rights of indigenous and tribal peoples to possess, develop, control and use their communal lands and to participate in the exploitation, management and conservation of the associated natural resources;
 - ◊ Strive to reach agreements with the peoples concerned, as far as possible, before awarding any concessions;
 - ◊ Ensure that indigenous and tribal peoples are granted the right of appeal to the courts, or any independent body specially created for that purpose, in order to uphold their traditional rights and their right to be consulted before concessions are granted and to be fairly compensated for any damage (para 4).
- Recommended once again that a framework law on the rights of indigenous and tribal peoples be elaborated and that the State Party take advantage of the technical assistance available under the advisory services and technical assistance Programme of the Office of the United Nations High Commissioner for Human Rights for that purpose (para 5).
- Recommended to the State party that it extend an invitation to the Special Rapporteur on the situation of human rights and fundamental freedoms of indigenous people (para 6).

18 August 2006: Decision 1 (69):

- Reiterated **“deep concern about information alleging that the State party has authorized additional resource exploitation and associated infrastructure projects that pose substantial threats of irreparable harm to indigenous and tribal peoples, without any formal notification to the affected communities and without seeking their prior agreement or informed consent”** (para 1).
- Requested “detailed information on the above-mentioned issues be included in the eleventh to thirteenth periodic reports of the State party, to be submitted in a single document on 14 April 2007. The Committee also wishes to receive, as previously requested, detailed information on the current status of the revised draft Mining Act and its compliance with the International Convention on the Elimination of All Forms of Racial Discrimination, as well as the Committee's 2004 concluding observations” (para 3).
- Drew “the attention of the High Commissioner for Human Rights as well as the competent United Nations bodies, in particular the Human Rights Council, to the particularly alarming situation in relation to the rights of indigenous and tribal peoples in Suriname, and invites them to take appropriate measures in this regard” (para 4).

Sources: CERD (2005), CERD (2006), emphasis added.

The 2007 *Saramaka People* judgment by the IACHR is binding on Suriname, and therefore of particular relevance to the developments in West Suriname. Among other things, the judgment calls for the application of the right to self-determination for members of Indigenous and Tribal

communities, namely the right “to freely determine and enjoy their own social, cultural and economic development.”²⁰ The judgment requires that by 2010, the Government of Suriname:

a) delimit, demarcate, and grant collective title over the territory of the members of the Saramaka people, in accordance with their customary laws, and through previous, effective and fully informed consultations with the Saramaka people, without prejudice to other tribal and indigenous communities. Until said delimitation, demarcation, and titling of the Saramaka territory has been carried out, Suriname must abstain from acts which might lead the agents of the State itself, or third parties acting with its acquiescence or its tolerance, to affect the existence, value, use or enjoyment of the territory to which the members of the Saramaka people are entitled, unless the State obtains the free, informed and prior consent of the Saramaka people. With regards to the concessions already granted within traditional Saramaka territory, the State must review them, in light of the present Judgment and the Court's jurisprudence, in order to evaluate whether a modification of the rights of the concessionaires is necessary in order to preserve the survival of the Saramaka people;

b) grant the members of the Saramaka people legal recognition of their collective juridical capacity, pertaining to the community to which they belong, with the purpose of ensuring the full exercise and enjoyment of their right to communal property, as well as collective access to justice, in accordance with their communal system, customary laws, and traditions;

c) remove or amend the legal provisions that impede protection of the right to property of the members of the Saramaka people and adopt, in its domestic legislation, and through prior, effective and fully informed consultations with the Saramaka people, legislative, administrative, and other measures as may be required to recognize, protect, guarantee and give legal effect to the right of the members of the Saramaka people to hold collective title of the territory they have traditionally used and occupied, which includes the lands and natural resources necessary for their social, cultural and economic survival, as well as manage, distribute, and effectively control such territory, in accordance with their customary laws and traditional collective land tenure system, and without prejudice to other tribal and indigenous communities;

d) adopt legislative, administrative and other measures necessary to recognize and ensure the right of the Saramaka people to be effectively consulted, in accordance with their traditions and customs, or when necessary, the right to give or withhold their free, informed and prior consent, with regards to development or investment projects that may affect their territory, and to reasonably share the benefits of such projects with the members of the Saramaka people, should these be ultimately carried out. The Saramaka people must be consulted during the process established to comply with this form of reparation. The State must comply with this reparation measure within a reasonable time;

²⁰ IACHR (November 28, 2007). para 95.

e) ensure that environmental and social impact assessments are conducted by independent and technically competent entities, prior to awarding a concession for any development or investment project within traditional Saramaka territory, and implement adequate safeguards and mechanisms in order to minimize the damaging effects such projects may have upon the social, economic and cultural survival of the Saramaka people; and,

f) adopt legislative, administrative and other measures necessary to provide the members of the Saramaka people with adequate and effective recourses against acts that violate their right to the use and enjoyment of property in accordance with their communal land tenure system.²¹

The implications of this binding judgment for West Suriname are numerous, and will be woven into this brief's analysis of the Bakhuis Bauxite Project ESIRs.

2.3 Inadequate discussion and engagement of land rights.

The ESIRs correctly identify land rights as one of the Indigenous Peoples' critical concerns and note: "The fact that BMS [NV BHP Billiton Maatschappij Suriname, BHP Billiton's Surinamese subsidiary] has previously received exploration concession rights in the areas, whereas to date communal land rights have not been granted to the indigenous communities, has exacerbated indigenous people's [*sic*] sense of unease about their continued access to land in the future."²² Nonetheless, the reports fail to address the issue of land rights adequately – for one, said rights are not granted, they are inherent – or with sufficient depth:

- The Indigenous Peoples' own preliminary land use map is not referenced. While mapping of traditional land use areas was conducted as part of the work on the Mine ESIA, it was not as in-depth as the traditional land use mapping conducted by the Indigenous Peoples themselves. **The ESIRs should highlight and reference Indigenous efforts to map their traditional territory, and to document their traditional use and occupation. However, it is important to make clear that these maps by themselves do not necessarily fully document the traditional land tenure system, but, rather, detail usages of lands and resources. It is therefore a grave error – as is done in the ESIRs – to simply draw lines around symbols on these maps as a means of territorial delimitation.**
- The way the land rights impact (Impact SE12) is described in the ESIRs is inaccurate, and the fact that the companies have broken down the ESIRs into separate projects instead of considering all the related developments in one report further compounds this problem (this process issue is discussed further below). The ESIRs currently describe the impact of the developments on the land rights question as "sense of encroachment on indigenous people's [*sic*] land."²³ According to the Mine ESIA, because "the actual encroachment of the project

²¹ *Ibid.* para 194.

²² Mine ESIR, 10-14.

²³ Transport ESIR, p. 10-20, (para 10.3.13)

[in this case the mining project] will have a minimal effect on indigenous people's [*sic*] land and resources, this assessment evaluates the *sense* of that encroachment."²⁴ There is absolutely no question that the developments WILL encroach on Indigenous Peoples' traditional lands. This ranges from land in the Bakhuis exploration concession area and land on either side of the Apoera-Bakhuis Road, to areas that are currently farmed and used for hunting and fishing, including the creeks and catchment area feeding into the Nickerie, Kabalebo and Corantijn Rivers, as well as the rivers themselves. It is also critical to note that the water systems are intrinsic to Indigenous traditional territories, with the Corantijn River often referred to as "the lifeline" of the Indigenous communities in the West.²⁵

The ESIRs should recognize that the activities WILL encroach – and have already encroached -- on traditional territory, and name the impact accordingly, taking out the initial words "sense of". Moreover, the scale of the encroachment envisaged by the mining project and associated infrastructure will significantly affect the integrity of the Indigenous territory and that these impacts need to be documented in terms of the overall effects on the traditional tenure system and cultural sustainability. In this respect, the Saramaka People judgment, as interpreted by the Inter-American Court in August 2008, provides that any project affecting Indigenous territories must be assessed on the basis of the extent to which it will affect the survival of Indigenous Peoples, which is understood to mean the ability of the affected peoples "to 'preserve, protect and guarantee the special relationship that they have with their territory,' so that 'they may continue living their traditional way of life, and that their distinct cultural identity, social structure, economic system, customs, beliefs and traditions are respected, guaranteed and protected.'"²⁶

- The mitigation measures fail to identify concrete steps to address the land rights situation in West Suriname, contrary to possibilities enshrined in company and industry policies and the orders of the *Saramaka People* judgment. The Transport ESIR states that "it is not within BMS's mandate to address land rights issues in Suriname."²⁷ Conversely, company policies point out that BMS is in fact in a position to comment on the land rights situation and to encourage the Government of Suriname to address and resolve this issue (see Box 3 for commitments as a member of ICMC).

There is also geographical precedence to support such an active stance. BHP Billiton has very much become involved in land rights issues in the context of other mines, particularly the Tintaya Mine in Peru.²⁸ And as BHP Billiton's Health, Safety, Environment and Community (HSEC) Management Standard #7 (7.4) notes, communication with governments

²⁴ Mine ESIR, 10-15.

²⁵ See VIDS (2008); Weitzner (2008).

²⁶ IACHR (August 12, 2008). para 37.

²⁷ Transport ESIR, p. 10-20.

²⁸ See, for example, Jose de Echave, Karyn Keenan, Maria Kathia Romero and Angela Tapia (2006); and, the Tintaya Dialogue Table Agreement, "Agreement on the Consolidation of the Progress on the Process of the Dialogue Table".

“is maintained in order to contribute to the development of public policy [and] relevant legislation.” Promoting positive land rights legislation and policies in Suriname clearly falls within this management standard.

Box 3:

BHP Billiton's Commitments as a member of ICMM, encouraging engagement on land rights issues in Suriname

BHPB is a member of the International Council on Mining & Metals' (ICMM). ICMM's May 2008 Position Statement on Mining and Indigenous Peoples states that:

“Where existing national or provincial law deals with Indigenous Peoples issues, the provisions of such laws will prevail over the content of this Position Statement to the extent of any inconsistencies. Where no relevant law exists the Position Statement will guide member practices. **Companies may also sometimes legitimately point out in discussions with governments any gaps in implementation of international conventions which they have agreed to and ratified** (emphasis added).”¹

The ICMM Position statement also commits its members to:

“Encouraging governments where appropriate to participate **in alleviating and resolving any problems or issues faced by Indigenous Peoples near mining operations** (emphasis added).”

Further, Principle 3 of the ICMM Sustainable Development Framework states that ICMM members will:

“Uphold fundamental human rights and respect cultures, customs and values in dealings with employees and others who are affected by our activities”

The Framework also explicitly states that reporting requirements will be used to document whether this principle is being implemented, including “the GRI indicators **on land rights**, on resettlement and on security and human rights (emphasis added).”

Sources: ICMM (2008); ICMM (2003).

In the absence of company encouragement, and despite community petitions to the government to address the land rights situation,²⁹ there have been no negotiations on land rights issues in West Suriname at all. Consequently, it is incorrect for the ESIRs to state that “negotiations with Government regarding the land rights of indigenous communities are longstanding.”³⁰

The 2007 *Saramaka People* judgment implies that before issuing a concession for exploitation to the companies, the Government of Suriname should commence the process to delimit, demarcate, and grant collective title over the territory of the members of the Indigenous Peoples in West Suriname. **Backed by the Saramaka People judgment,**

²⁹ On September 18, 2006 the community leadership submitted its most recent petition to the President of Suriname concerning addressing the land rights situation in West Suriname, with no government reaction to date.

³⁰ Transport ESIA, 11-13.

corporate policy and precedence, ESIR mitigation measures should, at a minimum, include the establishment of a negotiations table to address the land rights situation, with a mandate that is jointly negotiated by the communities, the Government of Suriname and other parties as appropriate.

2.4 Lack of recognition of Indigenous Peoples' right to free, prior and informed consent (FPIC).

In May 2005, BMS made a public commitment to affected community leaders to implement free, prior and informed consent (FPIC), but since then has back-peddled on this commitment. Rather, the BMS/Suralco approach is based on ICMM's Position Statement on Indigenous Peoples and Mining, which prioritizes engagement and consultation (discussed further in 'consultation and disclosure' portion of section 3).

The Public Consultation and Disclosure Plan (PCDP) outlines the companies' views on FPIC. It correctly highlights that FPIC has been recognized as customary law by the IACHR since 1984 and that it is protected in the Suriname-approved UN Declaration on the Rights of Indigenous Peoples. Yet the PCDP points out that FPIC is not enshrined in the IFC Performance Standards guiding the ESIA, which instead speak of free, prior and informed consultation, leading to broad community support, and to a "social license to operate". This, however, ignores the fact that IFC performance standard 7 on Indigenous Peoples requires good faith and successfully concluded negotiations with Indigenous Peoples – and hence some form of prior agreement – for projects such as Bakhuis.³¹ The PCDP also importantly omits reference to the 2007 *Saramaka People* decision, which requires the government and companies to obtain the free, prior and informed consent of the affected Indigenous Peoples prior to any activities affecting "the existence, value, use or enjoyment of the territory to which the members of the [Indigenous Peoples in West Suriname] are entitled,"³² and certainly prior to issuing a license for exploitation for the developments.

When large-scale development or investment projects could affect the integrity of the Saramaka people's lands and natural resources, the State has a duty not only to consult with the Saramakas, but also to obtain their free, prior, and informed consent in accordance with their customs and traditions.³³

Given the 2007 Saramaka People judgment (and reiterations in the IACHR's August 2008 interpretation) and articles 105 and 106 of the 1987 Suriname Constitution providing that ratified international treaties "which may be directly applicable to anyone shall have this binding effect as from the time of publication" (art. 105), and, that international instruments which are directly applicable shall supersede conflicting national laws (art.106), the ESIRs should uphold the communities' right to free, prior and informed

³¹ See IFC's PS7 para 13 and associated guidance notes.

³² IACHR (November 28, 2007). para 194 (a).

³³ IACHR (August 12, 2008). para 17.

consent and enshrine this as a standard to be used in the ESIRs, future operations and closure of the mine and related developments.

2.5 Lack of inclusion of Guyanese Indigenous Peoples in the scope of the assessments.

Currently, the ESIRs do not include Indigenous Guyanese communities living downstream on the Corantijn in the assessments (see further Section 3). This omission constitutes a violation of Indigenous rights, and certainly IFC Performance Standard 7 pertaining to Indigenous Peoples. There is no doubt that the traditional use areas of Guyanese Indigenous Peoples will be affected. The Transport ESIR socio-economic baseline notes close links between Guyanese and Surinamese communities, and that the Corantijn is “used by communities on both sides of the river to access hunting and fishing areas in both countries.”³⁴ Yet while the ESIRs correctly point out the fluid family ties across the border and that many Guyanese have integrated into the social fabric of the communities of West Suriname, Guyanese Indigenous people will be discriminated against in terms of any potential benefits. For one, the ESIRs state explicitly that they will not be considered for employment at Bakhuis. In effect, the political border and rules around citizenship will relegate Guyanese Indigenous people living in Suriname to second class citizens who will share the costs and receive none of the direct benefits from the mine, despite Indigenous customs and strong cross-border ties. The upshot of this might be intra-community conflict where this did not exist before. **Impacts on Guyanese Indigenous Peoples and their rights cannot be ignored in the ESIRs, and the companies should ensure that these are assessed, mitigated and monitored, even if it means a separate ESIA process undertaken with the approval of Guyanese authorities. Among other concerns, the safety of Guyanese Indigenous people using the Corantijn needs to be seriously addressed in plans regarding barging of bauxite.**

3.0 Substance and Process of the ESIA

Key concerns regarding the substance and process of the ESIA (draft management plans are considered separately in Section 4), include:

3.1 No effective participation of potentially affected peoples.

Indigenous and Tribal Peoples in Suriname are not involved in decision-making concerning concessions granted by the State that will affect their traditional territories. This was the case with the Bakhuis exploration concession. However, this exclusion counters international jurisprudence. The *Saramaka People* judgment establishes that “ESIA must be completed prior to the granting of the concession ... the State’s obligation to supervise the ESIA coincides with its duty to guarantee the effective participation of the Saramaka people in the process of granting concessions.”³⁵

³⁴ 7-34. See also VIDS 2008; Weitzner 2008 (forthcoming)

³⁵ IACHR (August 12, 2008) j, para 41

3.2 No ESIA for advanced exploration of the 2800km² Bakhuis concession.

Contrary to company policies and NIMOS guidelines, no ESIA was conducted for advanced exploration in the Bakhuis concession. According to the Mine ESIR, exploration activities included: active exploration in 528km² of the concession area; drilling 7700 test holes with approximately 650km² of gridlines, and an undisclosed amount of trenching; developing roughly 330km of laterite roads and tracks, extending through most of the concession area; restoring an existing airstrip; and developing a camp to house workers, involving clearing an area 200m x 200 m.³⁶

NIMOS' criteria for exploration permits includes that "no more than 10ha of the tenement land is at any one time significantly disturbed land because of mining activities;" anything above this could trigger an environmental assessment. The advanced exploration in Bakhuis would have therefore triggered an ESIA under NIMOS guidelines.

Moreover, company policies note that:

"BHP Billiton exploration activities are required to meet our HSEC Management Standards, as well as internal exploration standards. These standards require exploration teams to undertake environmental assessment and impact analysis for target areas and to develop an environmental management plan that describes the planned activities and the controls to ensure land disturbance is minimised."³⁷

Company representatives have apologized publicly for having failed to undertake an ESIA for exploration in Bakhuis, thereby acknowledging their failure to comply with company standards and Government of Suriname draft ESIA guidelines. **The ESIRs should consider mitigating the impacts that have already taken place from exploration activities that did not include the appropriate ESIA process, consultation or agreement-making with the communities. In particular, compensation should be considered for loss of access to hunting, harvesting and fishing grounds. No further advanced exploration work should take place in the concession area without first meeting company policies and obtaining the free, prior and informed consent of the communities. This would require undertaking appropriate ESIA studies and a formal agreement with the Indigenous communities, considering in particular the terms for Indigenous participation in the exploration activities.**

3.3 Inadequate implementation of company policies regarding consultation and disclosure.

As noted above, the PCDP states that the companies do not uphold FPIC, but instead recognize free, prior and informed consultation, as per ICMM's position. Indeed, ICMM's (May 2008) Statement on Indigenous Peoples and Mining commits to:

³⁶ Mine ESIR, 5-4, 5.2.4.

³⁷ <http://www.bhpbilliton.com/bb/sustainableDevelopment/environmentalCommitment/resourceConservation.jsp>

“Engaging and consulting with Indigenous Peoples in a fair, timely and culturally appropriate way throughout the project cycle. Engagement will be based on honest and open provision of information, and in a form that is accessible to Indigenous Peoples. Engagement will begin at the earliest possible stage of potential mining activities, prior to substantive on-the-ground exploration. Engagement, wherever possible, will be undertaken through traditional authorities within the communities and with respect for traditional decision-making structures and processes” (commitment 3, p. 3).

... “ICMM members recognize that following consultation with local people and relevant authorities, a decision may sometimes be made not to proceed with developments or exploration even if this is legally permitted” (commitment 9, page 4).

The problem in West Suriname is that the above commitments are not being met in practice. Indeed, for the exploration phase there was no consultation at all and no involvement by communities in the initial screening or the ‘high-level’ scoping exercise. Instead, the leadership and communities were simply informed that exploration would take place without the chance to comment on mitigation plans (there was no ESIA), or to formally negotiate terms of Indigenous participation or benefits. There was no MoU or Agreement with the communities for this phase, nor was there an assessment of whether or not the companies had a social license to operate for the exploration phase.

This further counters NIMOS guidelines concerning public participation at all stages of the ESIA process, and the requirement that:

“During all the EA steps, the project proponent must provide opportunities for interested members of the public, particularly those from local communities affected by the project, to access information on the project. The proponent must identify, record and take into account public concerns and comments.”³⁸

However, it wasn't until February 2006, and only following repeated requests by the Village Chiefs, that the company consultants undertook their first information-sharing workshops in the communities, even though the first scoping document (for internal use only) was produced in 2003.

The claims of the current ESIRs and PCDP (reiterated in the CEP) regarding consultation and disclosure paper over these and other serious deficiencies with the ESIA process that have been described in detail elsewhere.³⁹ Among some of the main problems that continue to be perpetuated in the ESIR documents and approach, are:

- *There is no mention of community protocols for consultation and consent, despite best efforts on behalf of the communities to have these recognized and implemented. Instead the companies consistently make their own plans for consultation, and then ask the communities*

³⁸ NIMOS (2005), Mining guidelines, p. 26.

³⁹ See, for example, Artist and Madsian (2007); Weitzner (2007); Weitzner (2008 forthcoming)

for comment. In its interpretation of the *Saramaka People* judgment, the IACHR explains that:

"By declaring that the consultation must take place 'in conformity with their customs and tradition', the Court recognized that it is the Saramaka people, not the State, who must decide which person or group of persons will represent the Saramaka people in each consultation process ordered by the Tribunal."⁴⁰

It continues that:

"The Saramaka must inform the State which person or group of persons will represent them in each ... consultation process. The State must then consult with those Saramaka representatives to comply with the Court's orders. Once such consultation has taken place, the Saramaka people will inform the State of the decisions taken, as well as their basis."⁴¹

It concludes by emphasizing that all issues related to any consultation processes with the Saramaka "must be determined and resolved by the Saramaka people in accordance with their traditional customs and norms...."⁴² This clearly indicates that community consultation protocols must be respected unless otherwise agreed to by the affected people. **The final ESIRs should reference community protocols for consultation and consent, and future consultations should implement community policies.**

- *Imposition of unrealistic company deadlines, leading to 'consultations' that are not 'free' or 'informed'.* While there has recently been more dialogue around timing and process for information-sharing workshops and consultations, the communities are consistently being pressured into accepting company deadlines. For example, Village Chiefs asked for a postponement of information sharing following the tragic death of a school child after a boat of schoolchildren capsized in the Corantijn River. The companies pushed hard to have the information sharing soon after this tragedy, even though the conditions were not appropriate for the information sharing to be meaningful. Moreover, the communities were pressured into agreeing to consultations regarding the draft ESIRs shortly after the information sharing, even though they did not yet have the capacity to understand the contents of the thousands of pages of complex, technical documents. **It is only after receiving input from independent experts, understanding this advice, and setting dates for consultations that fit in with community timelines and processes, that community consultations on the draft ESIRs might be 'free', 'informed' and meaningful.**
- *Time and again the PCDP refers to workshops specifically geared for information-sharing as consultations.* The Chiefs and Bureau VIDS have reiterated that the two cannot be conflated, and in order to engage in meaningful consultation it takes time to process all the technical information. **Information-sharing workshops are inappropriately presented as**

⁴⁰ IACHR (August 12, 2008). para. 18.

⁴¹ *Ibid.* para. 19.

⁴² *Ibid.* para. 27.

consultations in ESIR documentation, and this should be corrected in the final documentation.

- *The ESIRs inaccurately present all the Bakhuis Forum (BF) meetings as consultation events. While it is true that this forum helped to encourage dialogue among the parties, and that issues arising regarding the process of consultations were discussed, it is disingenuous to count the BF as substantive ESIA consultations.* On this the Chiefs and Bureau VIDS have been very clear. Moreover, it should be noted that VIDS and NSI have recommended the BF be evaluated for its effectiveness, particularly in light of the many actions promised within this forum which were not delivered.⁴³
- *Lack of disclosure of key documents.* The ESIRs mention several documents that were never disclosed to communities or to Bureau VIDS, despite repeated requests. These include the internal (2003) scoping document, independent reviews of the ESIA process, feasibility studies discussing alternatives, and the Biodiversity Strategy and Action Plan referred to in the ESIRs. On October 8, 2008 Bureau VIDS and the communities finally received a version of one independent review months after the initial drafts had been received and reviewed by the companies and their consultants. **Key documents should be made publicly available and be subject to comment by the affected Indigenous Peoples.**

3.4 Inappropriate Approach/Scope/Cumulative Impacts.

The fragmented approach to the ESIA process has been the subject of much comment by the affected communities, VIDS, NSI and others. Breaking up the project into separate elements disaggregates the impacts to such a degree that **it is currently impossible to determine the full scope of impacts of the mining-related activities with the documents provided.** This is true for a several reasons:

- *The documents are not yet complete, and the current approach of segmenting the ESIA has been considered illegal in other jurisdictions.* The Corantijn River Dredging ESIA will not be completed until next year, however it is critical to comprehending the full extent of project impacts (and is inextricably linked to the transport aspects of the ESIA). According to the Transportation ESIR:

“Dredging of the Corantijn River may alter the river hydrology at various locations by changing currents and the natural migration of sandbanks. This in turn may have an impact on the ecological functioning of the river, e.g., by affecting the distribution of river flora and fauna (including birds). Deepening of the river may result in increased riverbank erosion, which is of particular concern in the vicinity of Apoera where riverbank erosion is already occurring”.⁴⁴

⁴³ See, for example Weitzner (2007, 2008); Artist and Madsian (2007); Molenaar (2007).

⁴⁴ Transport ESIR 8-16, 8.7.16

Clearly, the dredging will have significant impacts on local livelihoods (especially fishing) and provokes safety concerns. Residents along the Suriname River could suffer similar effects, especially as larger/more ships transport alumina for export. Finally, while not as important for the communities in West Suriname, the Paranam refinery ESIA will be critical for the Government and communities living alongside the refinery to understand the real impacts of the Bakhuis project. Yet, instead of recognizing the linkages between these projects in assessing the overall impacts of mining Bakhuis, current project documents state repeatedly that parallel ESIA's are not in fact linked.⁴⁵ Indeed, even the cumulative impacts assessment chapter of the Transport ESIR does not recognize that the Suriname River Dredging Project is inextricably related, and therefore consciously leaves out a discussion of this project's impacts.⁴⁶

It should be noted that NIMOS' mining guidelines underscore that at a minimum, a description of a mining project should include: power facilities; transport and access; mining; processing and metallurgy plan; mine closure and reclamation; and, risk assessment, among a variety of other topics. The current fragmentation into multiple projects makes for a lack of clarity regarding what the 'project' actually is. According to NIMOS, all aspects must be integrated into a full picture.⁴⁷

Indeed, the current fragmentation/segmentation of the project into separate ESIA's has been considered illegal in other jurisdictions. In the United States, for example, there are numerous instances where courts have overturned approvals of ESIA's on the basis of improper segmentation.⁴⁸

- *The links between biophysical and socio-economic impacts never seem to be made – they remain largely disaggregated.* Only a few attempts are made at linking biophysical and social impacts, such as in the cumulative effects chapter of the Mine ESIR, which refers to the social implications of nuisance impacts. Biophysical effects on wildlife, for example, and potential implications for the cultural integrity and subsistence of Indigenous Peoples are missing from the analysis and mitigation measures.
- *The scope of the assessment does not include the complete area of influence of the mining related developments.* For example:
 - Indigenous communities in Guyana are left out. The ESIRs recognize that potentially affected communities along the Corantijn River in Guyana include the Indigenous

⁴⁵ For example, footnote 6 in Transport ESIR, p. 5-23: "BMS, Suralco, Staatsolie and MAS are currently investigating dredging of the Suriname River in order to provide greater draft and improved access to ships exporting alumina from the Paranam refinery. This is known as the Suriname River Dredging Project and an ESIA of the project is being undertaken. This is unrelated to the Bakhuis Transport Project." However, it is related to the overall impacts of mining at Bakhuis, and therefore documentation pertaining to this needs to be considered in the overall assessment.

⁴⁶ Transport ESIR, p. 11-3.

⁴⁷ NIMOS (2005), Mining guidelines, p. 14, 5.1.

⁴⁸ For a discussion of these cases, see Environmental Law Alliance Worldwide U.S. (2000)

communities of Orealla and Siparuta, as well as the community of Corriverton and its surrounds.⁴⁹ However, the study teams were not able to visit Guyana or consult with these communities, on the advice of the Ministry of Foreign Affairs of Suriname, due to the disputed delimitation between the two countries.⁵⁰ Consequently, no assessment was undertaken on effects, no mitigation measures are proposed for affected Guyanese communities, and the draft environmental monitoring plan omits monitoring of effects on Guyanese.

- Suriname River impacts from the transportation are not considered in detail, and from the documents submitted it appears no additional studies or monitoring will take place along the Suriname river. In the past, the impacts of the BHP Billiton/Suralco Coermotibo mine on the environment and people were not assessed or monitored, which included barging of bauxite.⁵¹ This situation can no longer continue, and in the case of Bakhuis, the impacts from barging on the Suriname river and the expansion of the refinery should be assessed with appropriate mitigation measures and monitoring in place, rather than the ESIRs simply stating that there will be no substantial difference in impacts from the barges related to operations at Bakhuis compared to those currently used for other mines. **Assessment, mitigation measures and monitoring of impacts must be undertaken for the Suriname River transportation corridor.**
- The scope of the cumulative impacts assessment is deficient. Currently, the cumulative assessment does not include two key large-scale projects, namely:
 1. The Kabalebo Hydroelectric project and associated refinery and/or smelter development in West Suriname “due to uncertainty around whether the projects will be developed.” Instead the ESIR states: “If or when the projects are re-activated, then cumulative impacts may be reassessed at that time.”⁵²
 2. The Integration of Regional Infrastructure on South America (IIRSA) project because according to the Transport ESIR “these are long-term concept plans for the region, and the projects are not likely to be implemented in the near future”⁵³

The rationale for not considering these two projects in the cumulative impacts assessment is flawed. If the government proceeds with Bakhuis, there is increased likelihood of the construction of the dam and smelter. The scheme not only features in current government multi-year plans, but officials have indicated in person that the hydro project is very much a ‘live’ option.⁵⁴ There has also been much media coverage of the government’s intentions for

⁴⁹ Transport ESIR, p. 7-3, 7.1.2.1.

⁵⁰ Since then a judgment from an arbitration tribunal of the United Nations Convention on the Law of the Sea was made in September 2007 (Transport ESIR, p. 8-8, 8.5)

⁵¹ This was clear from a visit to Coermotibo by West Suriname community members in 2005, where answers to questions regarding monitoring revealed that monitoring of social and environmental impacts was not taking place (see Weitzner 2007).

⁵² Transport ESIR, p. 11-3.

⁵³ *Ibid.*

⁵⁴ Personal Communication, January 2008, Ms. Vasseur, Director of the Bauxite Institute of Suriname.

an integrated aluminum industry in West Suriname, with current talks with BHP Billiton and Alcoa on hold as they search for companies interested in implementing the full suite of projects required for an integrated aluminum industry in the West.⁵⁵ With regards to the IIRSA, the Bakhuis mine project is also a long-term project – it has a 50-year life cycle. There is no doubt that the IIRSA will be developed within the project timeframe for Bakhuis. The Inter-American Development Bank (IDB) has already commissioned ESIA's to look at impacts and select consultations have taken place in Paramaribo.⁵⁶

It should be noted that NIMOS' guidelines call for EAs to consider “cumulative environmental impacts likely to result from the project in combination with existing or planned projects or activities”⁵⁷. Moreover, according to IFC Performance Standard (PS) 1, the project's area of influence includes (see Box 4):

“associated facilities that are not funded as part of the project (funding may be provided separately by the client or by third parties including the government), and whose viability and existence depend exclusively on the project and whose goods or services are essential for the successful operation of the project.”⁵⁸

Finally, the Inter-American Court on Human Rights states clearly that:

“one of the factors that the environmental and social impact assessment should address is the cumulative impact of existing and proposed projects. This allows for a more accurate assessment on whether the individual and cumulative effects of existing and future activities could jeopardize the survival of the Indigenous or tribal people.”⁵⁹

Following IFC PS 1's definition of the project's area of influence, NIMOS' mining guidelines, and the Saramaka People judgment, the cumulative impact assessment of the Bakhuis ESIRs should consider the Kabalebo hydrodam and potential smelter, as well as the IIRSA, among any other potential projects planned for the future.

⁵⁵ See references in endnote 4.

⁵⁶ See for example, Royal Haskoning Consultants (2007).

⁵⁷ NIMOS (2005). p. 17.

⁵⁸ IFC PS 1, para ii.

⁵⁹ IACHR (August 12, 2008). para 41.

Box 4:

IFC PS1's definition of a project's area of influence

- (i) the primary project site(s) and related facilities that the client (including its contractors) develops or controls , such as power transmission corridors, pipelines, canals, tunnels, relocation and access roads, borrow and disposal areas, construction camps;
- (ii) associated facilities that are not funded as part of the project (funding may be provided separately by the client or by third parties including the government), and whose viability and existence depend exclusively on the project and whose goods or services are essential for the successful operation of the project;
- (iii) areas potentially impacted by cumulative impacts from further planned development of the project, any existing project or condition, and other project-related developments that are realistically defined at the time the Social and Environmental Assessment is undertaken; and
- (iv) areas potentially affected by impacts from unplanned but predictable developments caused by the project that may occur later or at a different location. The area of influence does not include potential impacts that would occur without the project or independently of the project.

Sources: IFC (2006).

3.5 Lack of rigorous consideration of alternatives, or presentation of rationale for current option.

With regards to the alternatives for transportation options,⁶⁰ while feasibility studies are cited, it should be noted that these were not disclosed when requested. Moreover, right now, it appears that economic motives largely drove the decision for the chosen option. There is no real discussion on why the slurry pipeline was eliminated (aside from potential project delays), or how the potential impacts (social, environmental) of that option compare with the current choice. This violates NIMOS mining guidelines which require a description of the alternatives and their impacts on the environment (defined to include social aspects).⁶¹

Moreover, there was no discussion or community participation in deciding options for potential sites of infrastructure, such as the port/jetty and bauxite handling facility in Apoera. Given the harmful impacts of locating this infrastructure right next to Zandlanding (encroachment on

⁶⁰ Transport ESIR, p. 5-6, 5.6.

⁶¹ NIMOS (2005). p.17.

fishing grounds, etc.), why was there no consideration of an alternative siting of the port/jetty, for example, downstream of the communities where fewer negative socio-environmental effects might be felt? **If decisions concerning siting of the jetty, bauxite handling facility and other related infrastructure are still to be negotiated with the communities through the Impact Benefit Agreement (IBA), then the ESIRs should be very clear that final siting has not yet been resolved, and provide impact information on alternative locations.**

3.6 Lack of analysis on the “no project” option.

The current ESIRs do not adequately discuss the scenario under which there should be no Bakhuis Project. This is a standard requirement in ESIA processes, including the Akwe:kon Voluntary Guidelines and the NIMOS mining guidelines.⁶²

3.7 Very rushed timeframes not only for the data collection, but also in process expectations.

The draft ESIRs, particularly the Transport ESIR, refer time and again to the rushed timeframes and limited fieldwork. For most studies, only a single reconnaissance trip was taken due to ‘restrictive project timelines.’⁶³ Besides this stated limitation, the documents themselves belie any potential for appropriate consultation or process following the dissemination of the draft ESIRs. The January Transportation ESIR includes a construction schedule that begins in June 2008, implying that the contents of the ESIR would be disseminated, consulted, finalized, approved and a license for exploitation issued within a period of 5 months. Nonetheless, the documents state that construction will take place “subject to BMS being granted a mining license by the Government of Suriname”⁶⁴ A key question is whether construction activities have started prior to Government approval.

3.8 Breach of best practice and human rights by pressuring communities into signing an Interim Agreement without legal counsel present.

On September 9, 2008, company general managers and the Chiefs of West Suriname signed an Interim Agreement concerning the Bakhuis Project, stating, among other things, the companies’ commitment to signing an IBA with the communities, and to enabling the development of a community development plan. However, the signing of the agreement was neither ‘free’ nor fully ‘informed’, and is far from the FPIC required by the *Saramaka* Judgment. The signing was not ‘free’ in that there was tremendous pressure on the community leadership to sign this agreement in light of repeated statements by BHP employees that the company would pull out of the project if the agreement was not signed, and increased agitation among the current community workers employed by BHP Billiton worried about potential job loss should the company pull out because the agreement was not signed. It was not ‘informed’ in that the community leadership had not yet received substantive legal counsel on the agreement, and they

⁶² *Ibid.* p.18, 5.4.

⁶³ See, for example, Transport ESIR, p. 6-3, 6.12.

⁶⁴ Transport ESIR, page 5-5, footnote 3.

had no legal counsel present at the signing (while the companies were represented by board and senior management).

3.9 Suggestion in the ESIRs that an impact benefit agreement with the communities will be negotiated following the issuing of a license and during construction is backwards, and not best practice.

Currently, the Community Engagement Plan notes that “negotiations for an Impact-Benefit Agreement will be pursued during [the construction phase].”⁶⁵ While the companies are to be commended for the commitment to negotiate an IBA, the process and timing is far from ideal, and it is important to stress that an IBA is not necessarily the same as obtaining FPIC. Indeed, experience shows that communities have far more leverage in terms of their negotiating position prior to government approval. To facilitate this, the Government of Suriname could put political pressure on the companies to make significant progress in negotiating an agreement with the affected communities as a condition to approving the project, as has been done in the case of BHP Billiton in Canada.⁶⁶ **At the very least, prior to obtaining Government approval for the project, and prior to construction, the companies and communities should negotiate a Memorandum of Understanding or framework agreement that will set the stage for the impact benefit agreement-making process. This MoU should have been a pre-cursor to any formal agreement with the communities (indeed prior to any interim agreement). It sets the terms for the process, including requirements for funding, technical support and legal counsel to enable the communities to negotiate on equitable terms.**

3.10 Lack of focus on gendered impacts.

While there is some mention of gender impacts in the documents (for example, the Mine ESIR refers to gender in relation to labour quotas),⁶⁷ there is insufficient attention particularly around gender impacts of the mine in the Indigenous communities. During the exploration phase there were significant impacts on women whose spouses or sons left to work at Bakhuis for a two-week rotation period. These impacts included increased workloads stemming from childcare, Eldercare and pressure to engage in fishing as a source of food. Impacts on the gender roles in farming were also noted. Men mentioned increased pressure to provide for their families when they returned, which resulted in very little family time during their week at home.⁶⁸

All this points to the importance of considering gender impacts in designing the mine site and employment rotations and conditions (particularly in dealing with potential family breakups, increased family violence etc.). For example, women will be even more affected by barging and may not be able to fish as close to home; they may also take their children along, which has safety implications for all. Furthermore, as women are primarily responsible for farming (their access to these plots may be severely affected by the current transportation routes) mitigation

⁶⁵ CEP, p.11.

⁶⁶ See, for example, Bielowski (2003); Sosa and Keenan (2001); Weitzner (2006).

⁶⁷ Mine ESIR, 13-6.

⁶⁸ Weitzner (2007).

measures regarding this will need to be considered. Finally, research by VIDS/NSI has uncovered a deep concern regarding the increasing role of prostitution (and associated STDs) in response to existing large projects (logging) near the villages. This is an equally pressing threat around Bakhuis.⁶⁹ Currently there is little or no discussion regarding prostitution in the ESIRs or mitigation measures. **The final ESIRs should examine more closely gender impacts of the mine-related activities and recommend appropriate mitigation measures. These should consider not only terms of employment equity issues, but also the impact of the mine on the traditional roles and responsibilities of men and women in the Indigenous communities, access to traditional foods and livelihoods, and safety. There should further be in-depth assessment of issues related to prostitution (and resulting STDs), with mitigation measures and plans described.**

3.11 No panel of experts to guide the ESIA process.

VIDS/NSI noted in a 2007 document⁷⁰ that the litmus test for whether the companies were committed to embarking on a world class ESIA was whether, among other things, it established a panel of experts to guide the Transport ESIA (it had not for the Mine ESIA, which we pointed out as a major flaw) This was also recommended by Dr. Robert Goodland, in a review commissioned by VIDS and NSI.⁷¹ Instead of establishing such a Panel, the companies elected to undertake external reviews of its ESIA process that have not all been disclosed despite repeated requests, with one recent exception — it was only in October 2008 that Bureau VIDS and the communities finally received a version of one independent review.

3.12 Conservation values and economic concerns trumping human rights considerations.

The current mine plans and mitigation measures show a clear preference for the economic bottom line and conservation values, over human rights, sustainable livelihoods and cultural integrity considerations. For example, the exploration concession comprises five water catchment areas which feed into the Nickerie River, the Kabalebo (a tributary of the Corantijn), Left Adampada Creek, Falawatra and Mozes Creek (both tributaries of the Nickerie). These catchments individually cover between 4% and 54% of the entire concession.⁷² ESIR plans currently note that “since runoff from mining [bauxite plateaus in envelopes 1 and 2] could affect the Adampada Creek [a tributary of the Coppename River which flows into the Central Suriname Nature Reserve (CSNR)], BMS has undertaken not to mine any bauxite located within the Adampada catchment area.”⁷³ In short, the ESIR admits that there will be environmental contamination that could affect the Adampada Creek and the integrity of ecosystems within the CSNR.

⁶⁹ See for example Weitzner (2006).

⁷⁰ Weitzner (2007).

⁷¹ Goodland (2006a).

⁷² Mine ESIR, Table 6-5, p. 6-26.

⁷³ *Ibid.* p.5-12, 5.5.2.

Instead, plans are to mine the Nickerie and Kabalebo River catchments, both of which are critical for the livelihoods of Indigenous Peoples living downstream. While mitigation measures in the ESIRs do propose that mining in the Kabalebo catchment area be put off for 15 years while further impact studies are carried out, the assumption is that this area will eventually be mined, with no further studies for the Nickerie river. The Mining ESIA in fact states there will be no significant impacts for communities downstream on the Nickerie, and therefore they are not included in the EMMP. In light of the admission that contamination of the Adampada Creek could be possible, claims that impacts to the Nickerie River and downstream communities will not be significant raise questions and clear concerns that the Indigenous Peoples Panel of Experts review will have to consider. **At the very least, monitoring in areas used by downstream communities on the Nickerie should be a priority, and a mechanism for ongoing two-way communication with these communities well established. These areas should be included in the EMMP. With regards to mining in the Kabalebo catchment area, West Suriname Indigenous communities need to be very involved in the follow-up studies and decisions as this is an important fishing, hunting and gathering area central to their traditional livelihoods and cultural integrity.**

Further, the ESIRs clearly highlight the preference given to economic factors in decision-making, over those related to human rights. For example, on ore extraction, the mining ESIR notes that:

“Although BMS studies showed that all the deposit areas can be ripped with a CAT D11 dozer, the hard cap on the uppermost part of the bauxite profile in some areas requires a combination of blasting and ripping. The choice between ripping and blasting will be made on economic grounds and it is assumed that 50% of all material will be blasted so that the bauxite is loosened and can be excavated.”⁷⁴

Economic grounds should not be the sole criteria driving decision-making on whether to blast or rip for ore extraction; indeed, socio-environmental impacts, such as on the migration of wildlife due to the noise of the blasting or impact on nesting sites etc., should be front and centre in decision-making. Already, communities are experiencing adverse impacts on wildlife in the area, and 50 years of dynamiting as opposed to ripping could have significant effects on wildlife availability and Indigenous livelihoods.

Finally, currently there is no discussion of compensatory offsets for mining that includes Indigenous Peoples as the key managers of the offset areas.⁷⁵ Compensatory offsets are always an essential and important compensatory mechanism where any critical habitat may be lost or affected. In the case of Bakhuis, offsets should be tropical rainforest nearby or adjacent to the area of forest being lost. **Prior to independent evaluation by experts, the ESIRs should include a compensatory offset package based on IUCN's new paradigm of protected areas, namely Indigenous Protected Areas.**

⁷⁴ *Ibid.* p.5-22, 5.5.6.1.

⁷⁵ Indeed, while Kaboerikreek is mentioned as a potential offset, it should be noted that this would likely ONLY be considered by the Indigenous Peoples in West Suriname if the model of protection was based on the new paradigm of Indigenous protected area recognized by the IUCN (see Weitzner 2007 for a discussion of this issue).

4.0 Draft Management Plans Related to the Proposed Bakhuis Bauxite Mine

Before commenting on the draft management plans submitted, it is important to point out two critical omissions:

- *No Environmental Management Plan (EMP) for advanced exploration.* As noted above, the Bakhuis project violated its own company policies and NIMOS guidelines by not undertaking an ESIA for the exploration phase. Nor did the company submit an EMP for exploration to the Government or for public review, as per NIMOS guidelines.⁷⁶ Such an EMP should have addressed issues around communications and local relations, but in practice the communities had no input at all. According to the ESIRs, the company intends to continue advanced exploration work in the Bakhuis concession while it is actively mining⁷⁷. **Future exploration work should be considered for approval only following submission of adequate EMPs, among other NIMOS requirements.**
- *No Emergency Response Plan (ERP).* According to NIMOS guidelines, documentation submitted must include a prevention and emergency response plan.⁷⁸ While the ERP can build on existing company emergency preparedness procedures, as the companies propose, it must be available for public review. This has not occurred. Currently the ESIA documentation refers to, but does not include, an emergency response plan. Considering the hazardous activities that will be taking place in and around the Indigenous communities, Government and community approval of the ERP is critical. For example, the fuel facility in Apoera will be expanded to 1.62 million litres of diesel (2-3 tanks) and every 10-12 days fuel will be delivered to Apoera by (river) tanker. Should there be spills during the transportation of the fuel, or at the fuel facility in Apoera, the impacts on the livelihoods and safety of the Indigenous Peoples in the communities and those living downstream would be significant. **The companies should submit a draft ERP of the initial mining-related and construction activities for the review and approval of the government and communities.**

4.1 Draft Environmental Management and Monitoring Plan

Concerns and questions regarding the draft EMMP include:

- *No inclusion of social impacts.* The current EMMP places no emphasis on social impacts at all (aside from those around benefits), contrary to the definition of “environment” used in other plans – such as the draft closure plan. Instead, “social aspects are addressed in a separate, complementary Community Engagement Plan (CEP) and BMS will supplement the CEP by assisting communities to create a community development plan.”⁷⁹ There is an

⁷⁶ NIMOS (2005). 6.1.1. p.18.

⁷⁷ Mine ESIR, p.5-10, 5.5.1.3.

⁷⁸ NIMOS (2005). 6.3., p.22.

⁷⁹ *Ibid.* p.2.

argument to be made that **social and environmental impacts and monitoring should be considered together, rather than in two different plans, as per increasing experience that social and environmental impacts are interrelated. Indeed, until social impacts are duly considered, with monitoring measures identified and mitigation plans in place, the ESIA should not be approved and the project should not go ahead.**

- *No overt mention of local Indigenous Peoples as key participants in company monitoring, and no inclusion of traditional/local knowledge to supplement western data collection techniques.* The communities seem to be left out as a major audience and target of the EMMP, despite international best practice and agreements that state they should be the key participants in environmental and social monitoring. It should be emphasized that while the draft CEP does mention the possibility of community-based monitoring of impacts,⁸⁰ this is insufficient on its own. **Community-based and managed monitoring should be established to oversee the social and environmental impacts of mining-related activities, including gendered and human rights impacts.**

Furthermore, as per the Akwe:kon guidelines, there should be emphasis on local and traditional knowledge, not only western scientific data collection.⁸¹ **Company managed monitoring, as outlined in the EMMP, should make it a priority to train and employ local Indigenous people in all monitoring activities, and value local knowledge alongside western knowledge.**

- *Weak model for 'independent review.'* Currently the draft EMMP notes that “throughout construction (and operations), external audit using external peer reviews is recommended,”⁸² and refers to BMS contracting external monitors.⁸³ The model for independent monitoring and review currently in place at BHP Billiton's Ekati mine in Canada is often cited as one of the most innovative aspects of this mine, and should be adapted for Bakhuis. **It is advisable that an independent monitoring body be established as a 'watchdog' to monitor company activities. The composition of this body should be the subject of negotiations, with consideration given to each Indigenous community appointing an expert, along with government and company appointees. While this independent review body is being established, any external reviews conducted should be jointly negotiated with the communities, and outcomes of the reviews disclosed publicly.** To date only one external

⁸⁰ CEP, p.26.

⁸¹ EMMP, page 29 refers to Bakhuis data management specialists and data monitoring assistants. This should involve local people as much as possible, and include local traditional knowledge not just western science. In fact, the value of local knowledge is at one point acknowledged in the Transport ESIA biophysical baseline, which cites that the number of terrestrial animals species identified by local sources in the transportation corridor between Bakhuis-Apoera-Niew Nickerie was more than double that of a field survey (Transport ESIA, p. 6-35, 6.2.8.5.)

⁸² EMMP, p.10.

⁸³ *Ibid.* p. 11.

review has been shared with the communities, and this only in October 2008, months after the first draft appeared.⁸⁴

- *Limited scope of monitoring.* The current scope for the EMMP appears to be limited mostly to the areas of operation instead of the area of influence of the mining-related activities (see Box 4 above). As mentioned above, **the scope of the EMMP needs to change to include monitoring of downstream areas and species that people use for their livelihoods. Indeed, these criteria (areas and species that people use) should top the 'indicative list of aspects that will be monitored', and the list should be further refined to include, for example, key wildlife species and fish, and dimensions of human health and well-being, among other social aspects (currently left out of the list).**

Moreover, the current scope of the EMMP does not include the Dredging project ESIA, and yet it does refer to maintenance dredging.⁸⁵ This is confusing: Does the EMMP cover or not cover dredging? **Ideally, the EMMP would include all aspects of the mining-related activities, including the dredging, rather than there being multiple monitoring plans. However, in order to do this, the dredging ESIA and its results will first need to be incorporated.**

Further, currently there are no measures included in the monitoring with regards to local Indigenous employees and their terms of employment. **It will be critical to negotiate appropriate terms of reference for recruiting and employing local Indigenous employees, and to include monitoring of implementation in order to learn from and adapt these terms as necessary.**

- *Lack of clarity with regards to whether/how activities currently underway are being monitored, and if these plans have been the subject of consultation and negotiation in the communities of West Suriname.* As noted above, construction activities were scheduled to begin as early as June 2008. The EMMP refers to an Engineering, Procurement and Construction Management (EPCM) contractor Construction Environmental Control Plan⁸⁶, to an Emergency Response Plan (ERP) for the construction that will be prepared by the EPCM Contractor,⁸⁷ and to an EMMP Implementation Plan — BMS Construction to be prepared by SRK. Current plans are to workshop the construction ERP, present scenarios and consult with the communities. Key questions are whether or not these documents, along with ERP scenarios, were the subject of discussions, consultations and negotiations in the communities prior to the construction activities currently taking place? **It is imperative that all documents pertaining to construction planning be well consulted with the communities prior to construction starting.**

⁸⁴ *Ibid.* p.38, footnote 16, states that “an external BHP Billiton audit was undertaken in both 2005 and 2007, which encompassed the Bakhuis exploration programme.” Despite repeated requests, these reviews were not shared with the communities.

⁸⁵ *Ibid.* p.6.

⁸⁶ *Ibid.*, p.52, Footnote 22.

⁸⁷ *Ibid.* p.51.

With regards to the EMMP Implementation Plan – BMS Construction, the current chart⁸⁸ outlining what this plan might contain again says nothing about social impacts, which are critical aspects of construction planning, especially around the accommodation camp. Moreover, construction seems to involve dredging in the river, which again emphasizes the need for the Dredging ESIA to be completed and be the subject of appropriate community consultation and decision-making before construction commences. **It is critical that the construction planning EMMP take into consideration social impacts, especially around the camp site construction and operation, and that the communities have input into final plans and managing these impacts. Because dredging is part of the construction activities, the Dredging ESIA needs to be completed and be the subject of appropriate community consultation and decision-making before construction commences.**

- *Vagueness re standards and guidelines.* With regards to standards, the EMMP refers only to BHP Billiton and Alcoa corporate requirements. Will the companies not be carrying through the IFC Performance Standards into all aspects of the mining operations? Similarly, there is no reference to either community policies and protocols, or the role of the Akwe:kon guidelines in monitoring impacts. The latter were singled out in the IACHR's 2008 interpretation of *Saramaka People* as international best practice that is directly relevant to ESIR processes. **The EMMP should reference the Akwe:kon guidelines and IFC Performance Standards as key tools that will be used to guide company monitoring activities, and revise company responsibilities to ensure that all people employed in monitoring are trained in using these tools (and do in fact use them). In addition, community policies should also be referenced as important tools to guide the EMMP.**
- *Communications/reporting of environmental incidents and other subjects with the communities.* Currently all EMMP reporting, including of environmental incidents, appears to be directed upwards through company channels. All communications with the communities on these issues are being left to BMS' corporate social responsibility (CSR) person. **It is advisable that the Bakhuis project director and key staff involved in environmental monitoring (the Environmental Superintendent for example) be among those formally responsible for communicating with the communities, particularly in relation to environmental incidents of concern. This should not be left solely to the CSR representative, who may not be trained in the subjects under discussion. Finally, any internal reporting that the communities request – such as the social reports by the CSR Superintendent⁸⁹ – should be provided to them.**
- *Community input into method statements around hazardous materials and emergency responses needs to be specified.* **Currently Method Statements concerning hazardous materials and emergency responses are revised continuously by the Health Safety and**

⁸⁸ *Ibid.* p. 57.

⁸⁹ *Ibid.* P.37.

Environment (HSE) Manager, but it is critical that communities have knowledge of these issues and input into these statements.

- *No mention of hiring community liaison people.* Currently the EMMP refers to the CSR Superintendent as having chief responsibility with regards to community liaison. Among other topics, the Superintendent “will inform affected parties at least two months in advance of the commencement of construction and operations activities that may potentially impact them.”⁹⁰ Clearly, simply informing affected parties is not enough; the liaison person should document and make sure community concerns are incorporated into decision-making about upcoming activities. While this will be the subject of future negotiations, **it will be critical to ensure that the communities themselves have in place a liaison person to dialogue with the company. This should be an employed position, paid for with company funds, but serving the communities. Consideration should be given to having one liaison person per community (including the settlement of Zandlanding).**
- *Inappropriate grievance mechanism.* Currently the EMMP refers to the CSR Superintendent and Officers at BMS maintaining a community grievance mechanism “to receive and respond to complaints and other issues of concern.”⁹¹ It also refers to BMS accommodating “local values and practices” wherever possible with regards to a grievance mechanism.⁹² Grievance mechanisms need to be the subject of negotiations within the communities, as the current model will not lead to optimal results. Indeed, one mechanism that is working well in Canada is the establishment of a committee made up of local Indigenous people that deals with all issues, including grievances, regarding recruiting Indigenous employees and employment at the mine.⁹³ Indigenous employees feel far more comfortable voicing grievances to their own people than to company staff, who might be perceived as a potential threat to job security if the employee is seen to be unsatisfied. **The communities of West Suriname should consider establishing a committee to be in place for the life cycle of the mine project to help with all issues concerning Indigenous recruitment and workplace conditions, including serving as the first place of call with regards to work-related grievances.**
- *More clarity needed with regards to spelling out the responsibilities of operations contractors in achieving “satisfactory environmental performance”⁹⁴.* **It is essential to spell out for operations contractors all the applicable international conventions addressing environmental and social matters, including the recent IACHR judgments. IFC Performance Standards and agreements with the communities should also be referenced, with due training regarding the contents of these agreements and their**

⁹⁰ *Ibid.* p. 50.

⁹¹ *Ibid.* p.16.

⁹² *Ibid.* page 50.

⁹³ Committees of this type have been established by the Innu and Inuit affected by Voisey Bay nickel mine in Labrador, Canada. To date, implementation officers note that these are working well (Larry Innes, Personal Communication, September 2008)

⁹⁴ EMMP, p. 31.

implications for mine operations. Measures for enforcing implementation of practices that accord with these agreements should be developed.

- **Clarify standards for reporting and disclosure. The EMMP should be specific on which guidelines they will use for reporting, for example the Global Reporting Initiative (as per the ICMM Position Statement on Indigenous Peoples). In addition, there should be disclosure of key mine-related documents to community members who request them, including audits and reviews.**
- **Revision of environmental measures. The following should be taken into consideration in the overarching environmental measures currently proposed:**
 - Ensure that the no-go areas in the concession include sites of importance (e.g., nesting) to the animals and fish that the communities use (15.3)
 - Incorporate community researchers and their traditional knowledge in revegetation efforts, alongside western-scientists (15.4)
 - Rather than focusing solely on pursuing effective community engagement and facilitating community development, a key focus should be on monitoring social impacts (health, gender, household economy, cultural integrity, etc), and on Indigenous training, employment and business (not simply 'local') (15.7)
 - Include measures to ensure protection of cultural integrity, such as: bussing community members to the mine site each day (as is done for Afobaka dam employees); enabling employees to come home for the weekend to participate in Saturday mission work, religious services, and family life; facilitating consumption of traditional foods at the mine site; adapting rotations to facilitate seasonal traditional activities (such as helping community women to open up farming plots). It should be noted that currently there is a focus on conservation measures, but none on conserving cultural integrity.

The above measures will no doubt be the subject of negotiations in the IBA, and therefore it is imperative that the ESIA's contain in-depth analysis of these issues, including proposed compensation measures.

4.2 Draft Community Engagement Plan

Many of the comments above regarding the EMMP relate also to the draft CEP. Those specific to the draft CEP, presented here in order of chronology in which they appear in the CEP, include:

- **The principles of engagement of Indigenous Peoples should be amended to include language from the Saramaka People judgment regarding consultation, consent and decision-making, and potentially also reference language in the Akwe:kon guidelines.**⁹⁵ Bullet 3 should be rewritten to say “respect and support **the right** (not

⁹⁵ CEP, p.8.

'desire') of the participating communities to determine their own development priorities..."

- **The CEP should cover 'closure' as well**, not just development, transport and operations after construction.⁹⁶
- The scope of the CEP needs to be amended. Currently the CEP "includes all area of contact stemming from the construction and operation of the Bakhuis project."⁹⁷ **As per the IFC definition of 'stakeholder engagement,' which the CEP quotes,⁹⁸ the Plan should include all communities affected by the project activities, not simply those in direct contact. Further, it is imperative that the CEP recognize the position of West Suriname Indigenous communities' that they are not only stakeholders but rights holders and owners of their traditional territories. This is very likely also the position of other Maroon/Indigenous Peoples who might be affected by activities along the Bakhuis transportation corridor.** Although the CEP does recognize that it may be "necessary to extend the geographical reach of the CEP in future,"⁹⁹ the effort to include other affected communities should be made before mining begins. This follows company policies and commitments. Special consideration should be given to Guyanese communities that will be affected by bauxite transportation.
- **The representation and role of the Bakhuis Forum (BF) needs to be evaluated, and consideration given to participation by the Chief of Wanapan and/or the Trio Granman.** As human rights and other impacts begin to be experienced, a key question is whether the Chief of Apoera can continue representing the people of Zandlanding, or whether the Chief of Wanapan, and by extension the Trio Granman, should participate in BF meetings. The Chief of Apoera will likely have much on his hands working for the interests of his people, let alone those of the Trio. As noted above, VIDS and NSI have also recommended that the BF be evaluated for its effectiveness and representation as a site for consultation.
- The CEP supercedes the Public Consultation and Disclosure Plan, but issues around misrepresenting consultation in the communities are repeated. It is not accurate to state that consultation in West Suriname started in March 2005.¹⁰⁰ Community leaders had their first information-sharing workshop in Paramaribo in June 2005 (with some meetings to ask for these beforehand) and the first round of information-sharing at the community level didn't take place until February 2006. In addition, the CEP claims there were preliminary discussions on the CEP in June 2007.¹⁰¹ None of these sessions can be conflated with consultation. **As with the PCDP, the CEP should correct this**

⁹⁶ *Ibid.* p.1 There are inconsistencies throughout the document, as in some places closure is also referred to.

⁹⁷ *Ibid.* p. 2, 1.2

⁹⁸ *Ibid.* p. 2.

⁹⁹ *Ibid.* page 11.

¹⁰⁰ *Ibid.* p. 15.

¹⁰¹ *Ibid.* p.15.

misrepresentation of 'consultation' and refer to community policies on consultation and consent.

- With regards to both the guidelines and international context grounding engagement, **it is critical to again include reference to Saramaka People, CERD, Akwe:kon guidelines and the UN Declaration on the Rights of Indigenous Peoples, and to draw from these standards the appropriate provisions for complying with consultation and free, prior and informed consent.** The current box summarizing Akwe:kon is too selective and, among other things, provides no substance on the guidelines' provisions for operationalizing FPIC at all stages of ESIA and decision-making, including the establishment of "a process whereby local and indigenous communities may have the option to accept or oppose a proposed development that may impact on their community."¹⁰²
- **The employment recruitment policy for West Suriname Indigenous Peoples should be the subject of negotiations between the Indigenous communities and BMS, and should not be formulated unilaterally by BMS.¹⁰³ Likewise for job-training and capacity-building.**
- Issues around resettlement and displacement need to be carefully considered. **According to the CEP only 1 household will be physically displaced and that monitoring of displaced people will continue into the construction phase,¹⁰⁴ but there is no doubt that many households will be economically displaced in terms of impacts on livelihood activities, and the ESIRs should include an appropriate assessment of this impact and suggested compensation measures.** Economic displacement is defined as occurring "when project land acquisition or project activities remove or limit the economic activities and livelihoods of affected people"¹⁰⁵ According to the CEP, negotiated resettlement and compensation frameworks and associated compensation arrangements will be completed prior to construction, and monitoring of displaced people will continue into the construction phase.¹⁰⁶ However, as noted above, **prior to any negotiations concerning resettlement and compensation, it is imperative that an MoU be in place to guide these negotiations, including allocation of funding for technical and legal support to the communities.** Nonetheless, it appears that construction may already have started, and a question is whether these arrangements are in fact already in place, or whether this company commitment has not been fulfilled.
- **Considering the Bakhuis Forum as the appropriate venue for engagement action planning should be reviewed in light of IBA negotiations.** Currently, it is unclear how the CEP, EMMP and other plans fit into the IBA negotiations. The IBA will likely

¹⁰² CBD (2004) p.9.

¹⁰³ CEP, p.16.

¹⁰⁴ *Ibid.* p.19.

¹⁰⁵ *Ibid.* p. 19, footnote 7.

¹⁰⁶ *Ibid.* p.19.

contain many of the elements that seem to be fragmented right now, among other things: stipulations around liaison with the communities, a hiring committee, and an IBA implementation committee – many elements that right now make up the CEP. A negotiations team will clearly need to be set up to negotiate these elements, and the 6-months timeframe stipulated for the 'engagement action planning' component should be reviewed as this goes hand-in-hand the IBA negotiations.

4.3 Draft Conceptual Closure and Rehabilitation Plan

Key comments and concerns include:

- **The CCRP should rectify the perception that the concession area is 'terra nullius'.** It states that "the concession area is uninhabited and undisturbed, apart from the exploration program activities".¹⁰⁷ **The concession area is in fact the traditional use area of Indigenous Peoples and Maroons.**
- Again there is no reference to *Saramaka People* in setting the legal framework.¹⁰⁸
- The following statement should be clarified: "BMS consulted widely during the ESIA processes with numerous meetings held in small communities ..."¹⁰⁹ A variety of other closure plans are referred to for geographical areas outside of West Suriname;¹¹⁰ in light of the narrow scope of the CEP, have these plans been disclosed to affected villages and have communities been consulted on their contents?
- *Closure objectives:* **The following should be highlighted as key areas of importance and impact:**
 - Water (rivers, creeks) and not only land in terms of sustainable use.
 - Wildlife trading. There is no real discussion of the wildlife trading, despite the fact that the Bakhuis project could have long lasting effects on this important economy.
 - Prostitution/Sexually Transmitted Diseases (STDs). The effects of prostitution are similarly ignored and STDs are left out of the list of health

Box 5:

Sahdew and Obouter's (2003) description of Rehabilitation in the East

"The wasteland that is left [following bauxite mining] can often hardly be rehabilitated because it is a landscape of bare kaolin without a layer of humus: a soil on which barely anything grows. Or it is a swamp where the alkaline environment maintains itself ... The few feeble attempts at 'rehabilitation' [in Suriname] are no use at all: one area is planted with exotic pine trees that hardly grow, in the other areas holes are made for planting neem trees, mango trees and other exotic species, whereas before there was natural forest with a great diversity of plant and animal species."

Source: Sahdew and Obouter (2003:6).

¹⁰⁷ *Ibid.* p.12.

¹⁰⁸ *Ibid.* p.5.

¹⁰⁹ *Ibid.* p.35.

¹¹⁰ *Ibid.* p.4.

impacts in the description of the socio-economic environment.¹¹¹

- Rehabilitating soil conditions. This is a deep concern in West Suriname as indications are that conditions for rehabilitation in Bakhuis are far less favourable than in East Suriname (Moengo-Coermotibo), where rehabilitation has been far from successful.¹¹² Indeed, the Mine ESIR notes that:

“Over half the areas drilled in the concession area have no topsoil [a requirement for rehabilitation], while more than half of the profiles of the remaining areas drilled have a topsoil layer between 40 and 80 cm in thickness. These profiles represent about 80% of all profiles and altogether they have an average thickness of about 20 cm of topsoil (In the Moengo-Coermotibo mining area, 60cm of topsoil is used for rehabilitation of mined out areas, with only variable success). Furthermore it is evident that the majority of the Bakhuis topsoil is gravelly or very gravelly, making it less suitable for rehabilitation purposes. It is clear there is a paucity of topsoil for effective rehabilitation of the mined-out areas in the Bakhuis concession area. Mitigation will be difficult...”¹¹³

Prior to commencing any mining activities at Bakhuis, it is imperative the companies ensure that rehabilitation efforts in East Suriname shift from being a “feeble attempt”¹¹⁴ with “only variable success”¹¹⁵ to being successful. Only then will there be some confidence that rehabilitation efforts in the more difficult Bakhuis terrain might lead to success.

- The Plan is correct in noting that social monitoring requirements need to be developed very early to ensure that community people can be trained in skills useful outside of the mining industry.
- **The closure objectives should include reference to obtaining free, prior and informed consent of the affected communities, as per Saramaka People.**
- *Scope of closure plan:*
 - Currently there seems to be a bias to look at the concession area only, rather than the transportation facilities and routes.
 - The CCRP does not include the closure of the “Sol” fuel facility in Apoera as it is privately owned.¹¹⁶ **BMS should require the “Sol” facility in Apoera to submit a closure plan if it is supplying BMS.**

¹¹¹ *Ibid.* p.16.

¹¹² Community members have visited Coermotibo on at least two occasions, once with the IDRC-funded project led by the VIDS/NSI (June 2005), and another by the companies (December 2006). On both occasions the communities remarked at the inadequacy of the rehabilitation efforts, particularly the inappropriate and non-native trees that has been used. The failure of rehabilitation efforts in East Suriname has been discussed by Surinamese academics as well (see for example, Sahdew and Obouter 2003).

¹¹³ Mine ESIR, p. 9-14-9-15.

¹¹⁴ Sahdew and Obouter (2006: 3).

¹¹⁵ Mine ESIR, p. 9-14-9-15.

¹¹⁶ CCRP, p.29.

- Not all communities that will be affected by the closure of operations were consulted, including those in Guyana.
- *Monitoring:*
 - **Monitoring of rehabilitation should include local Indigenous people and their knowledge, not just local research and educational institutions.**
 - **The independent review body for the mine might be in the best position to monitor closure plans, in addition to a body comprised of community and company people. It is critical that experts in environmental and social issues – not only CSR people – be involved in monitoring the closure planning.**
- **As the CCRP states, resources for reclamation should be set aside BEFORE mining commences. This has been highlighted also by Goodland as a key issue (2006b).**

5.0 Conclusion: Consolidating the Missing Pieces

This review concludes that much work needs to be done to bring the draft ESIRs up to Government of Suriname, company and international standards, and to meet Suriname's international obligations and recent orders by the Inter-American Court of Human Rights. There are many 'missing pieces' that need still to come together. In particular, the draft ESIRs:

- Are incomplete and inappropriately fragmented. Documentation concerning dredging impacts is noticeably absent.
- Provide very little information on social impacts or the mitigation of these impacts. This is particularly true in the area of human rights and Indigenous rights (for example, land rights), however there is also inadequate analysis linking environmental and social impacts among the various components of the ESIA. Key affected communities are currently left out of the analysis and mitigation plans.
- Omit key information concerning Suriname's international obligations, particularly the orders of the Inter-American Court of Human Rights under *Saramaka People*.
- Fail to provide appropriate analysis of cumulative impacts, including proposed projects towards an integrated aluminum industry in West Suriname (the Kabalebo project, IIRSA).
- Do not adequately consider alternative options or a 'no-go' scenario.
- Paper over deficiencies regarding violations of company and Government policies concerning the lack of an ESIA for advanced exploration, and ignore community policies regarding consultation and consent.
- Provide inconsistent application of IFC standards. It is not clear how or if these standards will be applied during implementation (they are not referenced in management plans).

- Fail to include consideration of traditional knowledge alongside western science in currently proposed monitoring activities.

The final ESIRs should respond to the above comments, and provide the pieces that are now missing, to ensure the full suite of impacts are appropriately identified and mitigation and compensation measures in place. This type of rigour is critical also to ensure that subsequent negotiations based on the ESIRs are as informed as possible.

Indeed, the affected Indigenous Peoples of West Suriname are also potentially in a position to ensure their concerns are addressed through negotiated agreements with the companies. Prior to entering into substantive negotiations with the companies, it will be critical to negotiate an MoU concerning the principles underpinning, and terms of the negotiation, including funding for technical and legal counsel. While there is no blueprint for (Impact-Benefit) agreements involving Indigenous communities and companies, recent agreements have included:¹¹⁷

- Provisions for Indigenous employment that address: quotas; training and apprenticeships; flexible work schedules to enable traditional activities; facilities to enable preparation of traditional foods within the work camp; cross-cultural training for both Indigenous and non-Indigenous employees; counseling; subsidized transportation from communities to the work site, etc. A committee may be established (sometimes joint company-Indigenous) to ensure employment provisions are enforced, and an indigenous employment coordinator hired to act as liaison between the communities and company.
- Provisions concerning training in skills that can be transferred once the mine closes.
- Ensuring contractors and subcontractors abide by negotiated employment policies as well.
- Provisions giving priority to awarding contracts to service the mine to Indigenous companies to service the mine (plus provisions for technical, institutional and financial capacity-building).
- Financial/equity provisions, such as Indigenous communities receiving royalties, profit shares, fixed cash amounts linked to specific events in the lifetime of a mine, or equity interests in the project, with possible representation of Indigenous members on the company's board of directors.
- Compensation to individuals who suffer losses caused by the mine (hunters, farmers, etc). IBAs may specify how to determine who is 'affected' and the process for calculating compensation.
- Environmental protection measures. The IBA can include: a list of anticipated environmental impacts, specific measures to minimize the impact on wildlife and/or sites of economic/cultural importance; the establishment of an independent monitoring system/body; conditions for a security deposit to finance mine closure/rehabilitation. The agreement may also lay out the environmental protection standards that are most acceptable to the communities, stated in very clear terms.

¹¹⁷ This list draws heavily from Sosa and Keenan (2001).

- Provisions to minimize negative social and cultural impacts of mining projects, such as: prohibition of access to Indigenous lands, hunting grounds and sacred sites by non-aboriginals; provisions for the development of social programs, such as counseling services to help Indigenous communities deal with stress, financial issues, and protection of vulnerable groups such as women and children; the development of community-based monitoring programmes, based on traditional knowledge, to monitor the social and cultural impacts of mining, including impacts on women; programs targeted to minimize tensions between Indigenous and non-Indigenous people through awareness-raising about the special rights of Indigenous Peoples.
- Establishment of an Implementation committee (also known as a coordination or management committee), that could comprise Indigenous community members, company officials and independent members that are jointly appointed. Some committees have been empowered to give financial incentives or penalties to companies who fail to comply.
- A dispute resolution mechanism.
- A term for review of the IBA (often 5 years).

In closing, the draft Bakhuis ESIRs highlight the complexity of the project, and the fact that much information is still unavailable concerning the likely impacts of the mine and related activities. This is not only because of the limited timeframe and process for the ESIA's, but because the project scope and description is constantly shifting. This will be especially true in the future, particularly if more exploration activities take place. For this reason, **agreement-making between the communities and the company should follow a phased approach. Apart from the MoU or Framework Agreement concerning the negotiations process itself, IBAs should be considered for both the construction phase and individual operations phases (most immediately for envelope 1 of the concession site only). Community-company negotiations should not be a one-time event to cover the entire concession area. Future mining envelopes and future advanced exploration should be subject to further and separate ESIA's, and spur separate negotiations.**

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Boat transport on the Corantijn river from Washabo to Nickerie



Annex 1: The Consultation Protocol of the Impacted Indigenous Peoples

Agreement between the Indigenous Peoples of West Suriname and BHP/Billiton and Suralco NV

Overeenkomst tussen de Inheemse volken van West Suriname en BHPBilliton en Suralco NV

Considering that BHP/Billiton and Suralco NV have signed Memoranda of Understanding with the State of Suriname which grant rights in relation to bauxite deposits in the Bakhuis area of West Suriname as well as the development of hydropower in the Kabalebo River and surrounding area, and that these companies have made considerable investments to define the nature and the feasibility of mining these bauxite deposits;

Overwegend dat BHPBilliton en Suralco NV Memoranda of Understanding met de Staat Suriname hebben getekend waardoor zij rechten hebben verkregen met betrekking tot de bauxiet reserves in het Bakhuis gebied in West Suriname en voor de ontwikkeling van waterkrachtwerken in de Kabaleborivier en omliggende gebieden, en dat deze maatschappijen enorme investeringen hebben gedaan om de bauxiet reserves te onderzoeken en wat de mogelijkheden zijn om het te mijnen;

Considering also that BHP/Billiton and Suralco NV are presently negotiating with the State of Suriname to define and secure rights and permits to mine and otherwise exploit the Bakhuis area bauxite deposits, including for the construction of associated infrastructure, and Kabalebo hydropower potential, and that an Environmental and Social Impact Assessment in relation to the bauxite mining has commenced;

Ook overwegend dat BHP/Billiton en Suralco NV momenteel met de Staat Suriname onderhandelen over de rechten en vergunningen om te mijnen en voor exploitatie van de Bakhuis bauxietreserves, inclusief de constructie van aanverwante infrastructuur en het Kabalebo waterkrachtpotentieel, alsook het feit dat een Milieu en Sociale Effect Studie ten aanzien van de bauxietmijnbouw reeds is gestart;

Further considering that the Bakhuis area is part of the traditional territory of the indigenous peoples of West Suriname on which they depend for their cultural, spiritual and physical sustenance and well-being, and that mining and associated infrastructure plans will affect them as well as indigenous peoples in the Wayambo region;

Verder overwegend dat het Bakhuisgebied deel uitmaakt van het traditioneel gebied van de inheemse volken van West Suriname, dat zij van dit gebied afhankelijk zijn voor hun culturele, spirituele en fysieke overleving en welzijn, en dat de plannen voor mijnbouw en aanverwante infrastructurele werken gevolgen zullen hebben voor de inheemsen van West Suriname en die van het Wayombo gebied;

Acknowledging that the rights of indigenous peoples to own and control their traditional lands, territories and resources and to participate in and consent to decisions that affect them are not explicitly recognized in the laws of Suriname, and that this absence of effective legal protections for the rights of indigenous peoples exposes BHP/Billiton and Suralco NV to reputational, commercial and legal risk, and undermines the effective exercise and enjoyment of the rights of indigenous peoples;

Erkennend dat de rechten van inheemse volken om hun traditionele gronden, gebieden en hulpbronnen te bezitten en te beheren en om deel te nemen en hun toestemming te geven aan besluiten die op hen van

invloed zijn, niet expliciet erkend worden in de Surinaamse wetgeving, en dat BHP/Billiton en Suralco NV hierdoor risico's lopen voor wat betreft hun reputatie, alsook commerciële en juridische risico's. Tegelijkertijd wordt hierdoor de effectieve uitoefening en genot van de rechten van inheemse volken ondermijnd.

Observing that, while indigenous peoples' rights are not explicitly recognized in the laws of Suriname, these rights are nonetheless guaranteed and protected by international human rights law, which is binding on the State of Suriname, and applicable in relation to the acts and omissions of the State and those authorized by the State by virtue of international law and via Article 103, 105 and 106 of the 1987 Constitution of Suriname;

Opmerkend dat, hoewel de rechten van inheemse volken niet expliciet erkend worden in de Surinaamse wetgeving, deze rechten, op basis van het internationaal recht, alsmede via de artikelen 103, 105 en 106 van de Grondwet van Suriname, wel degelijk gegarandeerd en beschermd worden door internationale mensenrechten die bindend zijn voor de Staat Suriname en van toepassing zijn op al het handelen en nalaten van de Staat, alsmede van diegenen die handelen met toestemming van de Staat.

Observing also, consistent with Inter-American human rights law, that the United Nations Declaration on the Rights of Indigenous Peoples, adopted by the United Nations Human Rights Council on 23 June 2006¹ provides, in Article 26, that

1. Indigenous peoples have the right to the lands, territories and resources which they have traditionally owned, occupied or otherwise used or acquired.
2. Indigenous peoples have the right to own, use, develop and control the lands, territories and resources that they possess by reason of traditional ownership or other traditional occupation or use, as well as those which they have otherwise acquired.
3. States shall give legal recognition and protection to these lands, territories and resources. Such recognition shall be conducted with due respect to the customs, traditions and land tenure systems of the indigenous peoples concerned.

and, in Article 30, that;

1. Indigenous peoples have the right to determine and develop priorities and strategies for the development or use of their lands or territories and other resources.
2. States shall consult and cooperate in good faith with the indigenous peoples concerned through their own representative institutions in order to obtain their free and informed consent prior to the approval of any project affecting their lands or territories and other resources, particularly in connection with the development, utilization or exploitation of their mineral, water or other resources.
3. States shall provide effective mechanisms for just and fair redress for any such activities, and appropriate measures shall be taken to mitigate adverse environmental, economic, social, cultural or spiritual impact.

Verder opmerkend, dat de VN Declaratie inzake de Rechten van Inheemse Volken, welke overeenkomt met de rechten binnen het Inter-Amerikaans mensenrechtensysteem, is aangenomen op 23 juni 2006 door de VN Raad voor Mensenrechten,² en in Artikel 26 het volgende voorschrijft:

¹ UN Doc. A/HRC/1/L.3, 23 June 2006

² UN Doc. A/HRC/1/L.3, 23 June 2006

1. Inheemse volken hebben recht op de gronden, gebieden en hulpbronnen die zij traditioneel in eigendom hebben gehad, hebben geoccupeerd, of anderszins hebben gebruikt of verkregen.
2. Inheemse volken hebben recht op de eigendom, het gebruik, de ontwikkeling en het beheer van de gronden, gebieden en hulpbronnen die zij bezitten op basis van traditionele eigendom of andere traditionele occupatie of gebruik, alsmede van gronden, gebieden en hulpbronnen die zij anderszins hebben verkregen.
3. Staten zullen deze gronden, gebieden en hulpbronnen wettelijk erkennen en beschermen. Deze erkenning zal worden verleend met respect voor de gewoonten, tradities en systemen van landbezit van de betrokken inheemse volken.

En, in Artikel 30:

1. Inheemse volken hebben het recht om zelf hun prioriteiten en strategieën te bepalen voor de ontwikkeling of het gebruik van hun gronden of gebieden en andere hulpbronnen.
2. Staten zullen in goed vertrouwen de betrokken inheemse volken consulteren en met hen samenwerken via hun eigen representatieve instellingen, teneinde hun vrijelijk tot stand gekomen en weloverwogen toestemming (*free and informed consent*) te verkrijgen voor de goedkeuring van enig project dat van invloed is op hun gronden of gebieden en andere hulpbronnen, met name in relatie tot de ontwikkeling, het gebruik of exploitatie van hun mineralen, water of andere hulpbronnen.
3. Staten zullen effectieve mechanismen verschaffen voor de rechtvaardige en billijke vergoeding voor dergelijke activiteiten, en er zullen passende maatregelen worden genomen om de negatieve effecten op milieu, economisch, sociaal, cultureel of spiritueel gebied te verkleinen.

Acknowledging also that BHP/Billiton's Sustainable Development Policy, states that BHP/Billiton will "ensure [that] we understand, promote and uphold fundamental human rights within our sphere of influence" and respect "the traditional rights of Indigenous peoples and valu[e] cultural heritage;"

Ook erkennend dat het Beleid voor Duurzame Ontwikkeling van BHP/Billiton voorschrijft dat BHP/Billiton "waarborgt dat wij binnen onze invloedssfeer fundamentele mensenrechten begrijpen, bevorderen en ondersteunen", en "de traditionele rechten van inheemse volken" eerbiedigen en "cultureel erfgoed" waarderen.

Further acknowledging that the BHP/Billiton and Suralco NV have publicly stated their desire and intention to ensure that the development of mining in West Suriname represents a 'win-win' situation for all involved, and that the indigenous peoples of West Suriname have affirmed that this cannot be achieved without full respect for their rights and interests and the development and maintenance of relationships based on mutual respect;

Verder erkennend dat, BHP/Billiton en Suralco NV publiekelijk hebben verklaard dat zij de wens en de intentie hebben om te garanderen dat de mijnbouw in West Suriname een 'win-win' situatie zal zijn voor alle partijen, en dat de inheemse volken van West Suriname hebben aangegeven dat dit doel niet bereikt kan worden zonder volledig respect voor hun rechten en belangen en dat de verhouding tussen partijen gebaseerd moet zijn op wederzijds respect.

IN ORDER TO ACHIEVE A MUTUALLY RESPECTFUL AND BENEFICIAL RELATIONSHIP AND TO REDUCE THE RISKS TO THEIR RIGHTS AND INTERESTS, the indigenous peoples of West Suriname, as represented by their traditional authorities who exercise their authority pursuant to the consensus of their respective communities in accordance with their customary laws (hereinafter 'the indigenous peoples'), and BHP/Billiton and Suralco NV, as represented by their undersigned duly authorized officers (hereinafter 'the companies') --

OM TE KOMEN TOT EEN VERHOUDING GEBASEERD OP WEDERZIJDIG RESPECT EN WAAR BEIDE PARTIJEN BAAT BIJ HEBBEN, EN OM DE RISICO'S VOOR HUN RECHTEN EN BELANGEN TE VERKLEINEN, verklaren de inheemse volken van West Suriname, vertegenwoordigd door hun traditionele leiders die hun gezag uitoefenen op basis van consensus van hun respectieve gemeenschappen, zoals hun gewoonterechten dat voorschrijven (hierna genoemd: "inheemse volken"), en BHP/Billiton en Suralco NV, vertegenwoordigd door ondergetekenden (hierna: "de maatschappijen"), het volgende:

HEREBY AGREE AND COMMIT TO THE FOLLOWING:

Article 1 -- Indigenous Peoples' Traditional and Human Rights

1. The terms 'traditional rights' and 'fundamental human rights' shall be understood in accordance with international human rights law, in particular as defined by the Inter-American Commission and Court of Human Rights and the United Nations Committee on the Elimination of Racial Discrimination, and by the indigenous peoples' customary laws.
2. As stated in BHP/Billiton's Sustainable Development Policy, the traditional rights of indigenous peoples and their fundamental human rights shall be respected. Adequate and effective safeguards and guarantees protecting these traditional and human rights shall be included in all instruments, plans, and operations pertaining to mining in the Bakhuis area, including those pertaining to any associated infrastructure and in relation to development of hydropower potential in the Kabelebo area.
3. The companies shall promote the traditional and human rights of indigenous peoples in all negotiations with the State of Suriname in connection with bauxite mining in the Bakhuis region and any associated infrastructure, and hydropower generation, and shall strive to ensure that adequate and effective protections for these rights are included in all agreements with the State of Suriname and in any permits issued by the State.

KOMEN HIERBIJ OVEREEN EN COMMITTEREN ZICH AAN HET VOLGENDE:

Artikel 1- Traditionele rechten en mensenrechten van Inheemse Volken

1. De woorden 'traditionele rechten' en 'fundamentele mensen rechten' zullen geïnterpreteerd worden overeenkomstig het internationaal recht inzake mensenrechten, met name zoals gedefinieerd door het Inter-Amerikaans Hof en de Inter-Amerikaanse Commissie inzake de rechten van de mens, en het VN Comité inzake de uitbanning van Rassendiscriminatie, en door de ongeschreven regels van gewoonterecht van de inheemse volken.
2. Overeenkomstig het BHPBilliton Beleid voor Duurzame Ontwikkeling, zullen de traditionele rechten van inheemse volken en hun fundamentele mensenrechten worden gerespecteerd. Om deze traditionele rechten en mensenrechten te beschermen zullen adequate en effectieve voorzorgsmaatregelen getroffen worden in alle instrumenten, plannen en operaties die te maken hebben met de mijnbouw in het Bakhuis gebied, inclusief aanverwante infrastructurele werken met betrekking tot het waterkracht potentieel in het Kabalebo gebied.
3. De maatschappijen zullen de traditionele rechten en de mensenrechten van inheemse volken bevorderen in alle onderhandelingen met de Staat van Suriname betreffende bauxietmijnbouw in het Bakhuis gebied, aanverwante infrastructurele werken en opwekking van waterkrachtenergie. Ook zullen de maatschappijen er naar streven om te verzekeren dat deze rechten op adequate en effectieve wijze beschermd worden in alle overeenkomsten met de Staat van Suriname en in alle vergunningen die de Staat uitgeeft.

Article 2 – Adherence to Indigenous Peoples’ Regulations

1. Pursuant to and in the exercise of their traditional rights, the indigenous peoples have adopted a policy and regulations that broadly define the manner in which they shall engage in consultation processes and express their consent in relation to activities, plans and proposals that may affect them. The policy and regulations are set forth in the Annex to this agreement and are hereby incorporated by reference and shall be deemed an integral part of this agreement.
2. The companies confirm that they will adhere to and comply with the indigenous peoples’ policy and regulations as the basis for their engagement with the indigenous peoples.
3. The indigenous peoples shall not amend or otherwise alter the policy and regulations without providing a minimum of 90 days notice to the companies.
4. In the case of a significant amendment to or revision of the policy and regulations that may materially affect the interests the companies, the indigenous peoples shall consult the companies with a view to obtaining their agreement to the proposed amendment or revision at least 90 days prior to enacting the amendment or revision.

Artikel 2 – Naleving van inheemse regelgeving

1. Ingevolge en in de uitoefening van hun traditionele rechten, hebben de inheemse volken een beleid en regelgeving aangenomen die in grote lijnen aangeven op welke wijze zij zullen participeren in consultatieprocessen en hun toestemming verlenen aan activiteiten, plannen en voorstellen die op hen van invloed kunnen zijn. Het beleid en de regelgeving zijn als bijlage opgenomen bij deze overeenkomst en worden hierbij als onlosmakelijk onderdeel van deze overeenkomst beschouwd.
2. De maatschappijen bekrachtigen dat zij zich zullen houden aan het beleid en de regelgeving van de inheemse volken en deze als uitgangspunt zullen hanteren voor hun interactie met de inheemse volken.
3. De inheemse volken zullen geen wijzigingen aanbrengen in het beleid en de regelgeving zonder de maatschappijen hiervan minimaal 90 dagen vantevoren op de hoogte te stellen.
4. In geval van een aanzienlijke wijziging in het beleid en de regelgeving die de belangen van de maatschappijen kunnen schaden, zullen de inheemse volken de maatschappijen hierover consulteren met het doel hun instemming te verkrijgen betreffende de voorgestelde wijziging of aanpassing, ten minste 90 dagen voor invoering van deze wijziging of aanpassing.

Article 3 – Dispute Resolution

1. In the event of a dispute concerning any aspect of this agreement, the indigenous peoples and the companies shall establish a committee composed of three (3) persons representing the companies and three (3) persons representing the indigenous peoples. This committee shall have the authority to act on behalf of the parties and shall attempt to resolve the dispute through dialogue and negotiation.
2. This committee shall adopt mutually acceptable and written terms of reference and procedures to govern its attempts to resolve the dispute.

3. Unless the parties decide otherwise, the committee shall examine and attempt to resolve each dispute under consideration within a 120 day period.
4. The parties shall not pursue legal or other remedies without first seeking to resolve the dispute in accordance with sub-paragraphs 1-3 above.

Artikel 3 – Geschillen Regeling

1. In geval van een geschil omtrent enig onderdeel van deze overeenkomst zullen de inheemse volken en de maatschappijen een commissie samenstellen bestaande uit drie (3) personen die de maatschappijen vertegenwoordigen en drie (3) personen die de inheemse volken vertegenwoordigen. Deze commissie zal bevoegd zijn om namens partijen te handelen en zal proberen om het geschil middels dialoog en onderhandeling op te lossen.
2. Deze commissie zal aan de oplossing van het geschil werken middels een wederzijds acceptabele en schriftelijke *terms of reference* en procedure.
3. De commissie zal elk geschil binnen een periode van 120 dagen bestuderen en een oplossing proberen te bereiken, mits anders overeengekomen door beide partijen.
4. De partijen zullen geen juridische of andere rechtsmiddelen gebruiken zonder eerst getracht te hebben het geschil op te lossen in overeenstemming met bovengenoemde paragrafen 1-3.

Signed on this the ____ day of _____, 2006,
Getekend op2006,

On behalf of the Indigenous Peoples:
Namens de Inheemse Volken:

On Behalf of the Companies:
Namens de Maatschappijen