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LC.2/Circ.433
17 December 2003

**CONVENTION ON THE PREVENTION OF MARINE POLLUTION
BY DUMPING OF WASTES AND OTHER MATTER
(LONDON CONVENTION 1972)**

Information received from the Government of Papua New Guinea (PNG) concerning the disposal of hard rock mine waste from the Lihir Goldmine in its internal waters

1 In 2002, when the Twenty-fourth Consultative Meeting reviewed issues related to interpretation of the London Convention 1972, it also considered a submission by Greenpeace International concerning the disposal of wastes from the Lihir Goldmine in PNG (LC 24/8). In that submission it was contended that the dumped mine wastes cannot be classified as “uncontaminated inert geological materials” and should therefore be seen as “industrial wastes” pursuant to paragraph 11 of Annex I to the London Convention (LC 24/17, paragraphs 8.7 to 8.11).

2 When the Twenty-fifth Consultative Meeting reviewed the same issue in 2003, it took note of the information which Lihir Management Company Limited had prepared in response to the submission by Greenpeace International (LC 25/INF.8). In this submission Lihir Management Company Limited stated that the disposal of waste rock and overburden to Luise Harbour in PNG is conducted in accordance with the terms and spirit of the London Convention and with the applicable national regulations in PNG (LC 25/16, paragraphs 6.8 to 6.10).

3 Prior to both the Twenty-fourth and the Twenty-fifth Consultative Meetings, the Secretariat had contacted the PNG authorities, inviting them to present their views on this case. The submission that PNG had intended to present to the Twenty-fifth Consultative Meeting only arrived after this meeting and is, therefore, appended in the annex hereto (in English only).

4 The position of PNG in this case can be summarized as follows. The disposal of hard rock mine wastes in the Luise Harbor at Lihir from the Lihir Gold Mine is carried out in the internal waters of PNG, which are not covered by the London Convention. The permitted activity was nonetheless subjected to national environmental impact assessment procedures and processes consistent with the Specific Guidelines for Assessment of Inert, Inorganic Geological Material adopted under the Convention in 2000. PNG also expressed the view that this issue should be deleted from the agenda of future Consultative Meetings.

5 Contracting Parties are invited to take note of the attached information.

ANNEX

INFORMATION RECEIVED FROM THE GOVERNMENT OF PAPUA NEW GUINEA (PNG) CONCERNING THE DISPOSAL OF HARD ROCK MINE WASTES FROM THE LIHIR GOLDMINE IN INTERNAL WATERS

A Project Location and Background

1 The Lihir gold project is located in the New Ireland Province of PNG. Lihir Island, about 900 kilometres north east of PNG's capital, Port Moresby, is a volcanic seamount that rises steeply from sea level to approximately 600 metres above sea level. At its widest points, the island measures 22 kilometres from north to south and 14.5 kilometres from east to west.

2 Gold was discovered in 1982 and in 1983 an Exploration License was granted. Upon discovery of economically mineable ore deposit the licensees undertook a feasibility study upon which a decision was made to proceed with the project development. This culminated in the application for and the grant of a Special Mining Lease covering an area of 1,748 hectares including the Luise Harbour.

3 During the exploration and feasibility phase between 1983 to 1992, baseline environmental data was collected for various areas including the Luise Harbour. Coupled with the application for SML an Environmental Plan was also submitted to the Government. After rigorous vetting and public consultations on the Environmental Plan, as well as the application for a Water Use Permit, approval of the Environmental Plan was granted and a permit issued for, *inter alia*, disposal of hard rock mine waste into the Luise Harbour.

4 As part of the requirement, the licensees also produced and implemented an Environmental Management and Monitoring Plan (EMMP). Government, as well as other independent, scientists have monitored and studied various aspects of the Environmental Plan and found them to be of a very high standard. Where areas of improvement have been identified, steps are being taken by the licensees to further improve their environmental performance.

B Submission from Greenpeace International

5 At the Twenty-fourth Consultative Meeting of Contracting Parties to the London Convention, held from 11 to 15 November 2002, a non-governmental organization, known as Greenpeace International, and having observer status was allowed time and space to present its views on the Lihir gold mining operation in PNG. In particular, Greenpeace International was critical of hard rock mine waste disposal at Luise Harbour, Lihir, and in their submission titled: "Sea dumping of wastes from the mining industry: the case of the Lihir gold mine, Papua New Guinea".

6 Greenpeace International's submission was predicated on the basis that the current hard rock mine waste disposal at Luise Harbour was "dumping at sea" as defined under the Convention which is the subject of discussion under Part D below and as appended to this submission in the format of a matrix. All other subsidiary arguments, such as the material not being uncontaminated inert geological material, and waste being from industry (mining operation), were prohibited under the Convention were predicated on the above misconceived basis.

7 Without discussing the details of permits and permitting processes for the disposal of mine waste at Luise Harbour, Greenpeace International goes ahead to call upon the Government of PNG to cease “dumping” of these materials and to develop contained and controlled land-based alternatives as if none of these alternatives were considered in the initial project approval and permitting stages.

C Key Issues

8 The key issues as regards Greenpeace International’s perspectives are:

- (a) whether the Convention is applicable to hard rock mine waste disposal from Lihir goldmine at Luise Harbour; and
- (b) if the Convention was applicable whether the hard rock mine waste disposal was a permitted activity for purposes of the Convention.

D Applicability of London Dumping Convention

9 PNG acceded to the Convention in 1977 via a specific domestic law known as the *Dumping of Wastes at Sea Act 1977*. However, in terms of practical application, it subsequently enacted environmentally-related domestic laws such as the *Environmental Planning Act 1978*, *Environmental Contaminants Act 1978*, and *Water Resources Act 1980* applying to the disposal of hard rock mine waste disposal at Luise Harbour, from Lihir gold mine in PNG. That is to say, the latter laws provide sound processes for environmental impact assessment (EIA) and approval and permitting procedures. These EIA and permitting processes and procedures are consistent with the Specific Guidelines for Assessment of Inert, Inorganic Geological Material, for instance, that was adopted in 2000 by the Twenty-second Consultative Meeting.

10 Upon careful analysis of facts and law, the Government of PNG is of the view that the Convention is actually inapplicable to the hard rock mine waste disposal at Luise Harbour in Lihir that comprises PNG’s internal waters as opposed to “sea” as defined under the Convention. That is to say, the activity under consideration is not dumping, as defined under the Convention, neither is it dumping at “sea” under the Convention. It is rather disposal within “internal waters” of PNG as an archipelagic State; a right clearly recognized and accorded PNG under the *United Nations Convention on the Law of Sea 1982*.

E Permitted Activity

11 Further, or alternatively, disposal of hard rock mine waste is a permitted activity. It is currently done within the Special Mining Lease (SML) area, i.e. Luise Harbour, and is part of the SML granted pursuant to the *Mining Act 1992*. The SML is conditional on compliance with relevant environmental laws of the country. In this particular instance, the disposal of hard rock mine waste comprised part of the approved environmental plan under the *Environmental Planning Act 1978* and is more specifically permitted under the *Water Resources Act 1982*.

12 The waste is still in its natural form, however, they are exposed to air and water that would trigger the formation of acid. Under Annex I to the Convention, materials that are of "inert, inorganic geological materials that maybe considered for dumping" and Article II calls for all Contracting Parties to “take effective measures individually, according to their scientific, technical and economic capabilities and collectively, to prevent marine pollution... and shall harmonise their policies”. In this context the Lihir waste rock disposal is categorized as inert, inorganic geological

material and has been permitted under PNG Environmental Planning Act 1978 and Water Resources Act 1982 to be disposed of, therefore, it is in compliance with the Convention.

13 The waste rock disposal is monitored by the company and regulated by the State through its Environmental Plan approval conditions and the Water Use Permitting conditions. The process is monitored through the EMMP that was approved by the State for self-regulatory purposes. These are effective measurements done individually, according to PNG scientific, technical and economic capabilities and collectively done with Lihir Gold Limited to prevent marine pollution as called for under Article II of the Convention.

14 There are a number of other monitorings carried out by Lihir Gold Limited outside of the approved EMMP. These programmes are done to assist communities to better focus on the changes from the project now, and in the future, when the mine closes.

F Conclusions and Recommendations

15 From the above discussions, it is the view of the Government of PNG that the Convention is inapplicable to the disposal of hard rock mine waste from Lihir gold mine that is currently being disposed off at Luise Harbour comprising internal waters of PNG. In the event that the Convention applies, which is denied by PNG, then it is a permitted activity having followed EIA process under the Environmental Planning Act 1978 and more so under the Water Resources Act 1982.

16 It follows also that the Convention is an inappropriate forum to deal with this issue that is domestic in nature, under the relevant laws of PNG.

17 PNG, therefore, strongly recommends that the Contracting Parties reject the Greenpeace International's submission as being outside the Convention's jurisdiction and/or it being a permitted activity under the environmental laws of the country and strikes this item from the agenda for the Twenty-fifth and any subsequent Consultative Meetings.

Attachments:

- 1 Legal, Technical and Scientific Responses to Submission from Greenpeace International on Hard Rock Mine Waste Disposal from Lihir gold mine at Luise Harbour, Papua New Guinea
- 2 Application of Environmental Planning Act 1978 and Water Resources Act 1982 - Lihir Gold Limited
- 3 Information received from Lihir Management Company Limited in response to document LC 24/8 by Greenpeace International

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Attachment 1

LEGAL, TECHNICAL AND SCIENTIFIC RESPONSES TO SUBMISSION FROM GREENPEACE INTERNATIONAL ON HARD ROCK MINE WASTE DISPOSAL FROM LIHIR GOLD MINE AT LUISE HARBOUR, PAPUA NEW GUINEA

#	Ref GI Sub	I Submission	GoPNG Comments
1	Title	Sea dumping of wastes...	Misleading
2	Executive Summary	<ul style="list-style-type: none"> • Waste rock • Dumped at sea • From Lihir gold mine in PNG • Contains elevated levels of toxic metals • Likely to be released to sea • Cannot be classified as uncontaminated inert geological material 	<ul style="list-style-type: none"> • Yes • No - within internal waters • Yes • Still in their natural state • Very slow change as it was not aggravated by any catalyst • Not industrial waste as the overburden was not processed in any way
3	Paragraph 2	Overburden consisting of mixture of rocks and finer materials, loaded on to barges and dumped at sea, close to mine, in an area known as Luise Harbour	Yes, but not at “sea” as defined in the Convention. Luise Harbour comprises “internal waters” of PNG as defined under UNCLOS. Further or alternatively, it is within archipelagic waters of PNG as an archipelagic State
4	Paragraphs 3&4	Reference to Environmental Impact Assessment	Confirms rigorous environmental compliance i.e. assessment of site as receiving environment etc.
5	Paragraph 5	Samples	With levels of metals presented in parts per million (ppm), it makes it appear very large a concentration when most of the PNG water quality standards are expressed in parts per billion (ppb). There was no sampling done for the ocean water quality to justify that the Environmental Plan proposal of the waste rock disposal under water will reduce the potential of acid generation because of the alkaline environment. The

			company collects water samples for analysis from site 1–9 within the waste rock disposal area to as far as the furthest Lihir Island Group (Mahur Island).
6	Paragraph 6	Elevation of mercury etc	Although the GI samples contain elevated levels of metals such as copper, arsenic and mercury, they were still in their natural state with no additives added to change their features.
7	Paragraph 7	<ul style="list-style-type: none"> • Waste from industry • Not uncontaminated inert geological material etc 	<ul style="list-style-type: none"> • Not so i.e. not from manufacturing or processing activity • See comments under Executive Summary
8	Paragraph 8	Political Risk	From GoPNG perspective it means the project is seen favourably i.e. none or reduced political risk impacting on the project.
9	Paragraph 9	EFIC	It was up to it. As far as GoPNG concerned EMMP is being complied with.
10	Paragraph 10	... dumping at sea of solid wastes is an issue of direct relevance to the Convention	On its own yes. But in the case of Lihir there is no dumping as defined under the Convention. It is a permitted disposal within internal waters of PNG and to its credit it is at great depths also.
11	Paragraph 11	<ul style="list-style-type: none"> ▪ Assumes dumping of waste at sea ▪ Assumes alternative waste disposal strategy not considered 	<ul style="list-style-type: none"> ▪ Not so i.e. within internal waters of PNG ▪ Alternatives considered. Best option available was deepwater disposal of tailings and hard rock mine waste.
12	Paragraph 12	Request to Australia	Up to Australia but GoPNG is of the view that Australia should not waste her time on inappropriate subject at inappropriate forum.
13	Paragraph 13	Experience on similar situations	Up to State Parties but GoPNG does not see any relevance given its permitted activity is within internal waters.

Attachment 2

APPLICATION OF ENVIRONMENTAL PLANNING ACT 1978 AND WATER RESOURCES ACT 1982 – LIHIR GOLD MINE

A BACKGROUND

1 An Exploration License (EL) was granted in 1983 after gold was discovered in 1982 in the caldera of Lihir Island by the Kennecott Mining Limited. On discovering economically mineable gold deposits, the Licensees advanced into producing a Feasibility Study. This study formed the initial stage of the Environment Impact Assessment.

2 The feasibility study provided most details of the mineral deposits and whether or not it could be mined. Based on these findings or data, an Inception Report was produced in accordance with the Environmental Planning Act 1978 and is a lead up document to a final Environmental Plan. It identifies all information necessary required in an Environmental Plan and this information needs to be accepted by the Department of Environment and Conservation prior to its preparation and submission.

3 Lihir Gold Limited (LGL) developed its feasibility study between 1984-1989 after the Exploration License (EL) was granted. The company developed its Inception Report, submitted it in 1989 and consultation on the Environmental Plan preparation commenced. The final Environmental Plan was produced in April 1992 and lodged with the Minister for Environment and Conservation in that year.

B ENVIRONMENTAL PLAN (EP)

4 The EP, submitted in 1992, was in accordance with Section 4 of the Environmental Planning Act 1978, where the developer is required to submit to the Minister for Environment and Conservation, on a voluntary basis, an Environmental Plan outlining all development it is intending to carry out in the identified project area. After lodging their EP, a full public consultation process was launched immediately to present the details of it to all interested and affected communities, including all levels of government.

5 The EP was produced in three volumes and contained the following information, as required in the "Environmental Planning Act General Guidelines for the Preparation and content of Environmental Plans".

Volume A

6 This volume contained a concise Executive Summary that described the proposed development, its anticipated environmental impacts, the benefits to be derived from it (including a statement on the consequences of no development) and its end use plan.

7 The Executive summary was produced and submitted in both English and pidgin (common local speaking language) where the project site is.

Volume B

- 8 This volume contained the detailed Environmental Plan as well as the following:
- A concise introduction describing the project with details of its objectives clearly defined;
 - The purpose of the development outlining the compliance to the Fourth National Goal and Directive Principle of the National Constitution of PNG, a statement or discussion made on the compatibility of the proposed development with national and provincial plans, goals and planning guidelines, the total capital cost of the development and economic benefits accruing nationally, provincially and to the immediate community was stated;
 - The viability of the project, including technological expertise and resources of the proponent, feasibility investigations, method of site selection including alternatives investigated, proposed future developments and future benefits including those at the national and provincial levels;
 - The description of the proposed development included the location maps, land tenure giving details, the development shown on plans together with the infrastructure required, details of the operations of the development, and life of the development;
 - The development timetable included description of the sequence of development, as well as clearing, infrastructural construction or instalment and development schedules shown diagrammatically and described;
 - The existing environment was divided into the physical biological and socio-economical components. The important areas identified were the areas that would or are likely to be affected by the proposal and described prior to development. The physical component composed of topography, soils, geology, meteorology and climate, hydrological and oceanography. The biological component consisted of plants and animals while the socio-economic consisted of all social and cultural features relating to the human settlement both existing and past;
 - The environmental investigations detailed presentations of investigations made on those components of the environment likely to be affected;
 - The environmental impact and safeguards included a description of the impact of proposed development on parts of the environment that would be affected. Of particular importance was the effect of development on the socio-economic component of the environment. All impacts identified had measures designed to mitigate or alleviate such effects and safeguards for the working environment described and emergency procedures and facilities described in detail. Risk analysis, where operations may be hazardous or where dangerous materials are used, were prescribed as well;
 - The energy balance through an equation for the development was included to show energy input against output from it and also identified sites of archaeological interest and history to be protected; and

- An Environmental Monitoring and Management Plan (EMMP) detailing all the monitoring requirements, procedures and what to monitor, plus the reporting mechanism was submitted later and approved by the Department of Environment and Conservation.

Volume C

9 This volume contained all the appendices for every investigation carried out and documentation of the baseline investigations, options, procedures etc. that were to be trialled during the process of developing the environment impact statement of the EP.

Development

10 The Environmental Plan for Lihir Gold Mining Limited was approved on 16 March 1995 by the Minister for Environment and Conservation. This was followed by the issuance of the Special Mining Lease (SML) by the Minister for Mining on 17 March 1995. The construction of the mine site began in November 1996, the first gold was poured on 25 May 1997 and the first gold sale was on 6 June 1997.

11 The operation is an open pit gold mine and operates on 2.825 million tonnes per annum and will operate for a life of about 37 years. The mining process for Lihir includes crushing, grinding, pressure oxidation and carbon in leach and finally an electro-winning process where the gold is recovered in bullion.

12 The Environmental Plan approval was based on the removal and disposal of approximately 330 million tonnes of hard waste rock and soft waste rock.¹ The hard waste rock was classified in two categories namely: durable and non-durable hard waste rock. The durable waste is the strong rock that is not subject to breakdown or degradation. The non-durable waste rock is weak to moderately strong rock that may breakdown to coarse granular material on exposure to air and/or water but will not degrade to a cohesive mass.

13 The Geochemical Characteristics and implications for disposal, as stated in the Environmental Plan by the NSR Consultants Pty. Ltd. (Australia) in April 1992, is that the waste rock comprises both barren and mineralized soil and rock. Most of the waste rock is mineralized to some extent but the mineralized portion is neither economically nor technically recoverable. However, it further describes that the waste rock has been divided into 17 material types based on their acid forming potentials and from the listing provided by the NSR Consultants, "virtually all of the waste rocks are either acid forming or potentially acid forming".

14 From the laboratory tests, carried out on all the acid-forming material types, they were immediately reactive and produced an initial flush of acid and readily dissolved constituents (Lihir Project Final Environmental Plan, NSR, April 1992) but the rate slowed thereafter until sulphide oxidation became established. This test indicated that if these acid-forming waste rocks were disposed off in "constructed conventional waste dumps on land" there was potential for these bacterially catalyzed sulphide oxidation to establish as soon as within 6 months. Considering the amount of waste rock that will be generated, this would have been a risk because the acid generation would be significant both during operation and especially in the long run. The problem was not

¹ Lihir Joint Venture, Lihir Project Final Environmental Plan, Volume B: Main report, 1992
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necessarily during construction and operational phases but the post mine closure would have seen the real risk after the company had ceased commercial operations.

Land Disposal

15 From the tests carried out, it was evident that the land disposal would require sufficient land area for soft and hard waste rock separately. It was advised that the soft waste had poor mechanical properties and, therefore, would have a negative impact on dump stability (NSR, 1992) precluding the disposal of soft waste in a conventional end tip dump. Also, a naturally depressed site, or an impoundment capable of storing approximately 142 million tonnes of waste, would need an alienation of at least 270 ha of land. There were limited flat areas within the caldera especially with the type of topography and geological formation of the island. The few small flat areas close to, and within the caldera, are used for gardening and village set-ups leaving very little for permanent alienation of a permanent waste disposal site. The steep topography also suggested that any land base dump would be placed above the villages currently located on the coastal fringe. With high rainfall and seismic activities in the area, there was no guarantee for safety in the long term thereby subjecting the locals to a safety hazard for the duration of the project and thereafter.

16 The island is blessed with underground streams that find their way out along the beaches and are evident during low tide. With high rainfall, the impoundment would require a spillway to discharge any access water, however, most of the rainfall would seep through the impoundment and would contaminate all groundwater with elevated dissolved constituents. The acid-forming materials from the waste and leaching from this impoundment would result in water quality problems during operational and the long term after the mine ceases.

17 On the other hand the hard waste rock storage or disposal required an area of 400 ha for a waste pile of 50m high. This was not available within the caldera, therefore, would need to be placed further inland from the coast. However, these materials are also acid forming types and, therefore, acid generation was possible and water sources both surface and groundwater would be contaminated.

Ocean Disposal

18 The ocean disposal option was considered after the waste material types were categorised into 17 different types. Most of these materials, over 56% (NSR, 1992), were potentially acid forming and needed to be disposed off safely and appropriately.

19 Lihir island is an oceanic island with its perimeter characterized by steep submarine rock slopes that provide the advantage in deep-water disposal just off the shore. The disposal of acid-forming materials under water has its advantages. The most viable and proven factor through tests by NSR Limited was that by placing acid-forming waste rock underwater it will exclude oxygen contact and prevent sulphide oxidation, although small amounts will be oxidized from dissolved oxygen while going through the water column immediately after disposal. Even with this minimum oxidation, the surrounding environment is already an alkaline medium and will provide an additional buffer for any natural acid generation from the rocks disposed underwater even in the long term.

20 The choice of ocean disposal was to avoid any permanent land alienation, prevent any safety hazard and especially to prevent long-term water quality problem on land with potential acid forming materials contaminating all fresh water. At the same time, the option gives a control of managing the acid generation from waste rocks in the long term.

21 The decision to approve the Environmental Plan for Lihir Gold Limited was based on rigorous environmental, social and technical investigations by both the company and the government. It was also the wish of the Lihirians that their land is kept for their future generations so under water disposal of the waste rock was allowed.

C ENVIRONMENTAL MONITORING AND MANAGEMENT PROGRAM (EMMP)

22 All resource developers and major industries in PNG are required to submit an Environmental Monitoring and Management Programme to the State for its approval before being implemented for the life of the project.

23 Lihir Gold Limited produced an EMMP through consultation with the government of PNG and local people. This EMMP, among other topics, was formulated to achieve approved mining, processing and waste disposal strategies through the following processes (NSR, 1992):

- the formation of an appropriately staffed and equipped environmental division based at the site to oversee the project's management during construction and throughout the operational phases of the project;
- a strong commitment by the owners of Lihir Gold Limited to environmental management and protection;
- a comprehensive monitoring programme to monitor the project's effects and identify unforeseen effects; and
- direct feedback of environmental monitoring results to the highest level of Lihir Gold Limited management and periodic reassessment of the project's effects and subsequent review of mitigating measures and safeguards.

24 This EMMP was lodged with the Secretary for Department of Environment and Conservation to comply with the approved EP condition. From compiling a baseline database of the area, including the water body surrounding the island, Lihir Gold Limited had been monitoring the impact since the construction phase of the project. The monitoring of an operations phase was divided into two parts; firstly, following construction: an intensive short-term validation study was aimed at verifying the adopted mixing zones including the waste rock disposal area and tailing disposal area and secondly, the other was for long term monitoring to ensure regulatory compliance and identify any unforeseen effects from the operations.

25 This long-term monitoring is currently ongoing and from the result provided there is general compliance to the Water Resources Regulation Schedule 4.0. Most of the issues highlighted by Greenpeace International have already been fulfilled. The EMMP applies to: stream water monitoring, near shore sedimentation rates and turbidity, survey of fringing coral reefs, metal content of fish and shellfish, upper ocean measurements, oceanic water quality, seawater quality near treated sewage outfall, ocean floor-sediment, benthic biota in ocean floor samples, vegetation in

potential SO₂ impact zones, mapping and counting of bamboo, magapode burrow counting and soil temperature, air quality monitoring and quality assurance/quality control for sampling and analysis. These were divided into construction phase monitoring (short term) and operational phase monitoring (long term). The operational monitoring is currently ongoing.

D WATER USE PERMITTING

26 One of the EP approval conditions is to comply with the Water Resources Act Chapter 205, 1982 by obtaining a Water Use Permit to discharge waste into any water body and to abstract water from a natural source.

27 The process itself is surrounded by lengthy public consultation with the affected and interested people on the project. Lihir Gold Limited applied for a number of water use permits for its construction phase. They were to allow miscellaneous overland discharges into the surrounding marine environment, abstract water for construction purposes, discharge treated sewage effluent into Londolovit Bay from construction camps and abstract water for domestic consumption in the camps. These permits were issued only for a maximum of two years and minimum of 12 months. Furthermore, new applications were lodged for additional permits and or existing permits to be amended to cater for an operational phase. These permits included one for the waste rock disposal within Luise Harbour and disposal of treated sewage effluent. The permits are currently valid and operating for terms ranging from 5 years for waste discharges and 10 years for water abstraction.

28 Monitoring during operational phases covers the physical, chemical, and biological aspects with validation monitoring done by both the company and State. Socio-economic monitoring is part and parcel of this process because it provides the status of how communities are accepting the changes from the project. The condition of the permits complements the EP conditions but are more specific to protecting the water bodies and marine environment for that matter.

29 All results from the monitoring programme are presented to the State through quarterly meetings between the State, landowners and the company and conditions are reviewed or further action called for. Final annual reports are documented annually. The Department also has an Environment Officer based at the mine site who is directly involved in community liaison and environmental monitoring.

Additional Monitoring Programmes

30 There are a number of other monitorings carried out by Lihir Gold Limited outside of the approved EMMP. These programmes are done to assist the communities to better focus on the changes from the project now and in the future when the mine closes.

31 Lihir Gold Limited embarked on removing all Giant African Snails on the island that were impacting on the village garden's root crops and eventually succeeded. There is a study on the acid rock drainage within the mine area and a proper mitigation strategy will be developed for submission to the State shortly.

32 Lihir Gold Limited has already put together a "Conceptual Mine Closure Plan" and will be submitting it to the State in 2004. They are currently reviewing their existing processes and upgrading them to reduce tailing generation. This was done through an Environment Improvement Plan that is called for under the new Environmental Legislation to be implemented by January 2004.

Lihir Gold Limited is also working towards finalizing a detailed work programme outlining long-term rehabilitation strategy for all impacted sites through a GIS.

E APPLICATION OF THE LONDON CONVENTION TO LIHIR GOLD LIMITED OPERATION

33 PNG does not believe that the operations of Lihir Gold Limited contravene the Convention because of the following.

34 Greenpeace International collected samples in November 2001. The sample collected from the soft clay overlying the gold reserves is made up of clay, argillic and advanced argillic materials that are potential for acid formation. The other sampling was from coarser rocky material originating from around the gold reserves themselves. The sample characteristics reflects rock type clay silica, silica clay and argillically overprinted boiling zone material that are acid forming waste rock, therefore, the results were definitely high in various metals and metalloids. However, there was no sampling done on the receiving marine environment to justify the claim that these same high concentrations are also evident in the receiving environment. The Environmental Plan proposal of the waste rock disposal under water will reduce the potential of acid generation because of the alkaline environment. The company collects water samples for analysis from site 1 – 9 within the waste rock disposal area to as far as the furthest Lihir Island Group (Mahur Island) to monitor this impact.

35 Although these samples contain elevated levels of metals such as copper, arsenic and mercury, they were still in their natural state with no additives added to change their features. However, the contact with oxygen and water did change some features and could have contributed to some high levels of metals but this would have been very slow due to the assumption that the change was not aggravated by any catalyst. The monitoring data provided by Lihir Gold Limited on a quarterly basis is always checked against PNG Water Quality Standard for marine and freshwater within various mixing zones permitted.

36 The waste is still in its natural form, however, they are exposed to air and water that would trigger the formation of acid. Under Annex I of the Convention, materials are of "inert, inorganic geological materials that maybe considered for dumping" and Article II calls for all Contracting Parties to "take effective measures individually, according to their scientific, technical and economic capabilities and collectively, to prevent marine pollution... and shall harmonise their policies". In this context the Lihir waste rock disposal is categorized as inert, inorganic geological material and has been permitted under PNG Environmental Planning Act 1978 and Water Resources Act 1982 to be disposed of, therefore it is in compliance with the Convention.

37 The waste rock disposal is monitored by the company, and regulated by the State, through its Environmental Plan approval conditions and the Water Use Permitting conditions. The process is monitored through the Environmental Management and Monitoring Plan that was approved by the State for self-regulatory purposes. This is effective measurements done individually, according to PNG scientific, technical and economic capabilities and collectively done with Lihir Gold Limited to prevent marine pollution as called for under Article II of the Convention.

F CONCLUSION

38 Making reference to the "Specific Guidelines for Assessment of Inert, Inorganic Geological Material" PNG has complied with the "Generic Guidelines". As outlined in Figure 1 of the Guidelines, the full process of determining waste and characterizing them, prior to issuing a permit has been completed through our National Environmental Laws that are consistent with the London Convention requirements.

39 At the same time PNG is a Contracting Party to the Convention and would not want to be seen as operating outside of this important convention because the country's citizens depend mostly on marine resources for their daily survival and we would not want to deprive them of this right.

40 The EMMP that is approved by the State and implemented by the company is a tool that helps the State's regulating body (Department of Environment and Conservation) monitor all resource developers, including the Lihir Gold Limited. This means that all its environmental monitoring is co-ordinated through the company's environmental division but is overseen by the State through the Environment Site officer at the mine site who reports regularly to the Headquarters on all emergency cases and recommends on mitigation steps to be taken. The company is always asked to foot the bill through the "polluter pays" mechanism.

G RECOMMENDATION

41 PNG requests that the Secretariat, with due consideration, confirm that the activities of Lihir Gold Limited are being conducted in accordance with the London Convention as per the National Environmental Laws; and

42 PNG recommends strongly that the Contracting Parties reject the Greenpeace International's submission as being outside of the Convention's jurisdiction and/or being a permitted activity under the National Environmental Laws of the country and strike this item from the agenda for the 25th and any subsequent Consultative Meetings.

H REFERENCES

- Annual Report, Lihir Gold Limited, 2002
- Lihir Joint Venture Lihir Project Final Environmental Plan, Volume B: Main report, CR235/23, NSR Environmental Consultants, April 1992
- Lihir Project, Environmental Management and Monitoring Program, NSR Environmental Consultants, 1992

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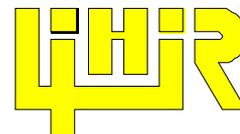
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Attachment 3

**INFORMATION RECEIVED FROM LIHIR MANAGEMENT COMPANY LTD. IN
RESPONSE TO DOCUMENT LC 24/8 BY GREENPEACE INTERNATIONAL**



LIHIR MANAGEMENT COMPANY LIMITED
Manager of Lihir Gold Limited
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September 11, 2003

Mr. René Coenen
Head, Office for the London Convention 1972
International Maritime Organization
4 Albert Embankment
London SE1 7SR
United Kingdom

Dear Mr. Coenen

Re: Response to Greenpeace International's Submission LC 24/8

Thank you for providing the opportunity to present our submission, through you as the Secretariat, to the forthcoming 25th Consultative Meeting of Contracting Parties to the Convention on the Prevention of Marine Pollution by Dumping of Waste and Other Matter 1972. Lihir Management Company (LMC) is aware that the Government of PNG will be making a separate formal submission as a contracting party to the abovementioned convention. This letter has been forwarded to the Government to keep them informed of LMC's position on this matter.

From the outset, LMC would like to clearly state that waste rock disposal in to Luise Harbor, Lihir Island, does not offend the spirit or the substance of the London Convention.

While several of the facts as presented by Greenpeace International are no longer current (e.g. mine life, production shareholding etc), these will not be addressed herein unless they specifically relate to the question of waste rock disposal at Lihir and its relevance to the Convention. Similarly, in relation to the sample results reported in the LC 24/8 submission, I am not in a position to verify:

- how the samples were collected;
- by whom; and
- the circumstances surrounding the collection,

and as such, I cannot comment on the validity of the data reported. What is evident is that the results and the report by Greenpeace (LC 24/8) do not:

- provide any scientific justification for the implied ecotoxicological impact associated with the placement of overburden and waste rock in Luise Harbor, and
- demonstrate, in any way, that Lihir's operations contravene the intent or substance of the London Convention.

Permitted Waste Rock Disposal at Lihir

The choice of marine discharge over land disposal was arrived at after extensive environmental, social and technical investigation. Comprehensive and ongoing validation continues to demonstrate that it remains the best waste management option for Lihir. The 12 year environmental baseline studies commenced in 1983 and were completed when the Lihir Environmental Plan was submitted in 1995. Social and community baseline studies commenced in 1986 leading to full and extensive consultation and negotiation over compensation, environmental and social impacts, and development. The community consultation process was the final step in the Government of PNG giving approval for the project to proceed. The consultation process involved a full four years of extensive and detailed community negotiation at which environmental issues featured prominently.

The environmental baseline studies involved comprehensive planning and research of all the waste disposal options for Lihir, including on-land storage. The final decision was based on both environmental and social grounds. Permanent on-land storage of waste rock would leave a long-term legacy of acid rock drainage (which does not occur when the waste is submerged below water) as well as the issues associated with maintaining a very large dam in this very wet and seismically active area. Similarly, the Lihirian community place great value on their land and they insisted that the footprint for the operation should be kept to an absolute minimum. The community therefore supported the Luise Harbor disposal option over the on-land storage option.

LMC in full consultation with the Government of PNG and the community adopted waste rock disposal in to Luise Harbor following a rigorous assessment, review and permitting exercise. The process involved each aspect of the attached flowsheet (Figure 1). Ongoing and comprehensive monitoring by LMC, the Government and independent international scientists confirms that there are no measurable ecotoxicological impacts on the marine flora or fauna associated with the waste rock disposal within Luise Harbor.

Why Lihir's Waste Rock and Overburden Is Not Industrial Waste

The Greenpeace submission attempts to draw a comparison between the metals concentrations found in NON-MINERALISED soils versus the NATURAL concentrations of metals found in mineralised overburden and waste rock at Lihir and then assert the latter is contaminated. Much of Lihir's geology is mineralized because of its volcanic origins, so it is completely natural, and expected, that the concentration of metals in Lihir's soils is much higher compared to non-mineralised soils used by Greenpeace in their comparison. It is widely reported that the average natural concentration of

metals, such as copper and arsenic reported by Greenpeace, vary over several orders of magnitude when comparing their concentrations in mineralised versus non-mineralised geological samples.

It is these same mineralised sediments that constitute the ocean sediments found in Luise Harbor and its immediate surrounds. These sediments derive from a catastrophic explosion of the caldera, which resulted in several cubic kilometers of highly mineralised sediment (similar to the overburden and waste rock) being deposited on the ocean floor.

Furthermore, since the formation of Luise Harbor, these same sediments have continued to erode and deposit naturally within the harbor and beyond as a result of the high rainfall, steep mountain slopes, highly weathered soils, and occasional seismic activity. Natural erosion rates within Luise Caldera are in the order of 1,000 - 2,000 tonnes per square kilometer year, which has continued to deposit within Luise Harbor for the past 50,000+ years.

Greenpeace attempts to argue that the current mineralized sediments are contaminated by the mine – this is categorically untrue. There is no process by which the metals concentrations in the overburden and waste rock is altered by the mining operation - it is simply overburden and waste rock that is mined, placed in barges and deposited on the floor of Luise Harbor. Similarly, contamination needs to be defined in terms of the receiving environment in which it is deposited. Given that the sediment deposited by the barges is the same sediment that makes up the sea floor of Luise Harbor and is the same sediment that has continued to be deposited on the ocean floor for the past 50,000+ years, then this cannot be classified as contamination, i.e. it is critically important to look at site specific background data when trying to assess potential environmental harm.

Waste Rock Disposal at Lihir Does Not Offend Either the Spirit or Substance of the London Convention

Notwithstanding all of the foregoing, LMC have in place a rigorous environmental monitoring program which is validated and audited by both the PNG Government and independent and respected international scientists including those from CSIRO, James Cook University, Deakin University and the Australian Institute of Marine Science, to mention a few. This ongoing monitoring and research, which involves comprehensive sampling of metals in fish (pelagic and demersal), shellfish and sea grass, continues to show that there is no evidence of bioaccumulation of metals within the marine biota. In addition, regular trace metals sampling of the waters surrounding the mine show that the water quality meets all PNG criteria for the protection of marine ecosystems at the required monitoring and compliance locations.

PNG has in place a comprehensive and internationally consistent legislative framework to effectively and rigorously adopt and implement all material aspects of the London Convention. Furthermore, the waste rock and overburden disposal into Luise Harbor:

- is not industrial waste given that it has not been processed in any way which might contaminate the sediments;
- it is the same material that forms the natural seafloor within and surrounding Luise Harbor;
- is a permitted activity within a legislative framework that supports the London Convention; and
- based on credible scientific studies there is no evidence of any toxicological impacts within the receiving marine environment.

It appears that Greenpeace have perhaps not realised the important difference between the naturally varying metals concentrations in mineralised versus non-mineralised sediments, and equally, do not appreciate the fact that the sediment which they say is being contaminated by LMC is the same sediment that makes up the sea floor in this area naturally. It also appears that Greenpeace are not aware of the Government of PNG's adoption of legislative, permitting and enforcement protocols, which give consistent and clear support to the intent and substance of the London Convention. It is unfortunate that Greenpeace did not consult with the Company or the PNG Government in relation to this issue as this would have enabled clarification of the facts.

In closing, LMC submit that the operation of the mine on Lihir and the disposal of waste rock and overburden to Luise Harbor is being conducted entirely in accordance with:

- a. the terms and spirit of the London Convention;
- b. all applicable PNG environmental laws;
- c. the detailed Environmental Plan and subsequent Environmental Management and Monitoring Program agreed to by the Government of PNG in allowing the mine to proceed; and
- d. the express wishes of the local community in minimizing the impact on their most valuable resource; their land.

LMC respectfully request that due consideration be given to:

1. confirmation that the activities of LMC are being conducted in accordance with the London Convention; and
2. that the matter be struck from the future agenda.

Please do not hesitate to contact me if you require any further information or clarification about this submission.

Sincerely



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Geoff Day
General Manager
External Affairs and Sustainable Development

