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## **Gold Mining Operation in North Sulawesi - NSWA Press Release**

28 July 2006

The North Sulawesi Watersports Association is concerned about new developments and activities of the mine under the joint management of PT. Meares Soputan Mining (MSM) and PT Tambang Tondano Nusajaya (TTN) in Toka Tindung, North Minahasa District, North Sulawesi, regarding the potential for significant long-term negative environmental, social and economic impacts to our industry and region. The NSWA is not convinced that the process to review and make a wise and fair decision is ready and it is advocating for the Government to define and implement a fair and open process on this issue. A letter already sent by the Ministry of Environment to PT MSM/PT TTN suggests that their Environmental Impact Assessment ("AMDAL" in Indonesian language) might not be valid and that it is therefore in need of review.

Submarine Tailings Placement ("STP"), the process by which waste from the mining process is disposed of into the sea, is the proposed method of disposal for this mining operation; the mine operators, PT MSM and PT TTN, say they "believe that STP is the best available solution for depositing the waste....". However, many respected scientists and experts in marine ecosystems question whether or not it is a responsible solution and even challenge some of the claims made by the mine operators regarding their scientific study on the effects of STP, as included in their AMDAL:

### **MSM claim no. 1**

**"The Lembeh Strait current data from our information also travels from Sth to Nth and hence this mitigates the possibility of any effect on this important marine area..."**

Local dive operators who have extensive knowledge of currents in and around the Lembeh Strait completely disagree with this statement. **Bruce Moore, North Sulawesi dive operator of many years and local expert on the Lembeh Strait, says:** "During rising tide, the water runs up the strait, from south to north. Falling tide is merely the opposite. On very rare occasions the tide can rise and fall in the same direction. In comparison, rising tide always results in a stronger water flow than falling tide. Because of the sculpted nature of the strait, the tide flow can bounce around, resulting in currents running strongly in opposite directions on either side of the strait, as well as heavy currents at some dive sites, while only a kilometer or less up or down the strait can have

only light current movement. When there is no tidal change (same water level for hours at a time), the currents can be their strongest, with very hard gusts in any direction as the water stays swirling within the strait, preventing any flushing through, which results in a distinct lowering of water clarity."

**MSM claim no. 2**

**"The chemical analysis of the tailings discharge is in compliance with the highest environmental standard in Australia and Indonesia, so the tailings will be as clean as can be. The solid components of the tailings has a chemical content which is equivalent to samples of sea floor muds taken in the area."**

The NSW asks what exactly it is about the chemical content that matches the seafloor muds - does the amount of heavy metals and their chemical species match them? Also, what about the "liquid" component of the tailings? (If that is full of heavy metals that quickly absorb to the solids and then sink to the bottom, this negates MSM's whole premise.)

**Dr. Thomas Goreau, President of the Global Coral Reef Alliance, says of STP:** "The mining company only discusses the solid wastes that will be dumped into the ocean, and not the dissolved chemicals, yet the soaking of the ores in cyanide will dissolve most of the toxic materials, and these will move with the water, not with the solid sludge. They do not mention that these wastes will be mixed with freshwater, not seawater, and since freshwater is much lighter than seawater, the dissolved chemicals will rise right up to the surface. I have personally seen this happen in many parts of the world where sewage is pumped into the sea. Although it is always claimed that the sewage stays deep down, in fact any observer can plainly see that the freshwater in sewage pumped deep down floats straight up to the top of the water, and the smelly slick with its garbage and oil can be traced for long distances at the surface of the ocean. The same will happen with the toxic mine wastes. This is a serious and fundamental flaw in their plan, which should not be permitted for exactly this reason.....Gold mining wastes contain very high levels of many toxic chemicals, including not only the cyanide and mercury used to extract gold, but also very high levels of other toxic elements such as lead, arsenic, copper, and zinc that are present in the minerals that are intimately associated with volcanic rock gold deposits. In addition the high levels of sulfur associated with them is toxic to marine life and causes sulfuric acid to be formed by bacteria which remove oxygen from the water. The net impacts will be devastating for any marine organisms exposed to the wastes, or to people who eat fish contaminated by even very low levels of these toxic materials. These kinds of toxic wastes need to be securely contained and isolated to prevent damage, and they have caused severe damage to human health and to ecosystems in many parts of the world where they have leaked out into rivers or seas. It is appalling that the mining company proposes to simply pump them into the ocean."

**MSM claim no. 3**

**"Sediment won't come above 140m from the detailed modeling completed to date.....The near surface currents are more complex especially near shore and hence why the tailings must be discharged at depth."**

It would be logical to assume that the deep currents are also complex, unless MSM can show us that it has valid data from deep current monitoring (ie, current meters installed at 150m or 200m depth). Were the current studies accurate and are the results of these studies actually included in the modelling? Did MSM properly model the behavior of what is in essence a tailings "emulsion" (super finely ground sediment suspended in water)? Did it take into account the known upwelling in the area - is this addressed at all in the model? Did it address the issue of "biological upwelling", whereby deepwater plankton could be contaminated from tailings exposure and then bring this contamination back up to the surface food chain when they do their daily vertical migration from 100's of meters depth to the surface at night?

**Dr. Mark Erdmann, Senior Advisor, Conservation International, Indonesia Marine Program, on sediments:** "MSM's claims that STP is an environmentally-friendly disposal methodology for their finely-ground tailings is predicated upon the idea that the tailings will be released below the predominant thermocline, which will act as a barrier to prevent the tailings from being resuspended into shallower waters. The company has stated that the STP outfall will be placed at approximately 150m depth ("below the thermocline"), which will ensure the tailings sink into the abyss. Unfortunately, these assumptions completely ignore the oceanographic and biological realities in North Sulawesi, and are hence completely invalid:

1. I have personally conducted significant research on the depth of the thermocline in the waters of North Sulawesi (using both CTDs, ROVs and submersibles), and have a wealth of data to show that the depth of the thermocline is highly variable and dynamic, ranging from 100 to 220m on a seasonal and occasionally daily basis. Hence, a 150m outfall will only be below the thermocline for a certain percentage of time. To ensure the outfall is ALWAYS below the thermocline would require it be placed below 250m (using a precautionary approach).
2. One of the main reasons for the fluctuation in the depth of the thermocline is the strong currents and associated upwelling of deep, cool waters that North Sulawesi is famous for. MSM's AMDAL assumes a stable oceanographic environment that simply DOES NOT EXIST in North Sulawesi. These strong upwellings will readily transport the suspended finely-ground tailings from depth (150m or greater) to surface waters - depositing sediment on corals, decreasing visibility in the water column, and allowing the heavy metals in these tailings to enter the shallow-water food chain. This would be disastrous for North Sulawesi's primary economic sectors of fisheries and marine tourism.
3. Even in the absence of oceanographic upwellings, the STP concept completely ignores yet another important pathway for tailings (and their contaminants) to re-enter shallow waters: the "biological pump" created by the daily migration of zooplankton. Every evening, zooplankton rise from depths of 200m or more to the surface to feed, returning again to depth before the sun rises. It is only logical to assume that their vertical migration to the surface will bring with them the contaminants in the tailings (either ingested or adsorbed to their bodies). This biological pump is NOT EVEN ADDRESSED in the AMDAL.

Perhaps just as importantly, even if the tailings remained at depth, it is a fallacy to assume that there will be no environmental impact. MSM's previous community engagement consultants attempted to convince local villagers that "there's nothing important in the ocean below 150m anyway". Nothing could be further from the truth. The villagers in the vicinity of the outfall currently engage in a deep-water hand-lining fishery for a range of deep snapper species (mostly *Etelys* spp.) in the 150-300m depth range - precisely the depths that will be most affected by the STP outfall. The caves and complex bottom structure that supports these fishes will be covered by the tailings, killing this fishery altogether. Moreover, MSM seems to have completely overlooked the fact that North Sulawesi is quite famously home to a number of charismatic and internationally-protected denizens of the deep, including coelacanths, sperm whales and megamouth sharks. The impacts of STP on these endangered and protected species has not even been considered by MSM!!!!

A final very important concern is that of the integrity of the STD pipe itself. As currently envisioned by MSM, this STP pipe will have to cross a minimum of 3.5km of shallow reefal area before descending into the depths to its outfall at 150m. A leak in this pipe (caused by either seismic activity, a ship's anchor, etc) would have disastrous consequences as the tailings would be released over shallow reef. There is simply no way to provide safety measures to mitigate against this possibility, and I am highly dubious that MSM would be able to quickly respond to and repair such a leak. It is important to note that MSM claims that one of the strongest justifications for using STP is that the seismically-active nature of North Sulawesi renders traditional tailings dams and other disposal methods unsafe; while this is a fair argument, it also applies to the underwater tailings pipe!"

**The NSWA believes that if MSM's study is shown to have been conducted in an inadequate way their AMDAL is undermined - they would not be able to prove that their proposed operation is environmentally sustainable. In this case, the NSWA advocates a more comprehensive study of this detailed modelling be conducted, by an independent scientific review. We would urge the government to delay granting MSM an operating permit until that new study is completed.**

### **Other Key Economic Activities that Require Excellent Environment Quality**

Mining is not the only economic activity in North Sulawesi, and its activities need to be compatible with other economic enterprises. Fishing and tourism are the Province's largest economic activities, and both of them are extremely sensitive to environmental impacts.

- **There are 47 coastal or marine tourism enterprises in North Sulawesi**
- **The tourism industry brings in more than 30 billion Rp (US\$3 million) per year to the local economy**
- **The tourism industry employs 37.8% of the local workforce.** Draft Report "Local and Semi-Local Economic Impacts of Dive, Tourism in Bunaken National Park, North Sulawesi, Indonesia" by Tyler Blake Davis, Masters Candidate, University of Washington (School of Marine Affairs, 2005).
- **The economic value of the natural resources in Lembeh Strait, once it is declared a Marine Protected Area, is estimated to be 696 billion Rp (US\$70 million) per year.** (Naskah Akedemik Kawasan Konservasi Laut Selat Lembeh, Kota Bitung, Propinsi Sulawesi Utara (Kerjasama antara Pemerintah Kota Biung dan Mitra Pesisir, 2005)
- **The North Sulawesi fishing sector brings in more than 550.000 billion RP (US\$55 million) per year.** (Pratasik dkk, 2002; BPS)
- **Bunaken's reef-friendly ecotourism industry provides the majority of the funds for management, conservation, and environmental education activities.** In 2004 alone more than 45,000 domestic and international visitors enjoyed a stay in BNP, recording more than 25,000 dives. In peak season there may be up to 1,000 divers in the park each month.

### **Future Development Planning for North Sulawesi**

North Sulawesi is being nominated to become part of the World Heritage network of marine protected areas of Indonesia and the world. A World Heritage site is a site that has been determined by the UN World Heritage Committee to have "outstanding universal value to mankind". North Sulawesi is nominated because the full diversity of the region includes the mangrove-rich areas of Likupang District, the strange but world famous Pygmy Seahorses and other creatures of the Lembeh Strait, the extensive coral and fish north of Bunaken off of Talise and Gangga Islands, the Sperm Whales and other endangered charismatic species (turtles, dolphins, mantas, whales) that wander in the marine corridors and coastal areas and other various habitats that each hold the potential and documentation of unique and additional species of flora and fauna.

For more on North Sulawesi's nomination, **check this website:**

**<http://www.divenorthsulawesi.com/pdf/worldheritage.pdf>**

to read an article on establishing a World Heritage Marine Site in North Sulawesi by Dr. Stacey Tighe, Senior Technical Advisor, USAID-sponsored Coastal Resources Management Project II).

### **The socio-economic argument against mining in North Sulawesi**

MSM justifies its planned location for STP by saying that it is "**principally a fishing area**". Even if this were the case, it should be noted that fishing already contributes

hundreds of billions of Rupiah each year to our economy. MSM states that "**the Toka mining operation should run from between 6-8 years.....** ", which means that the earning potential of the mine, however great, is limited. If a mine operating in North Sulawesi were to damage the marine environment, the potential for the sectors of fisheries to continue to contribute to the province's economy could be lost for generations to come, so the mine, whilst offering a short-term benefit, could harm our economy in the long-run. We know from previous experience that even a perception of a degraded marine environment will lead to catastrophic losses in the fishing community (North Sulawesi's fishing industry sustained losses of over Rp.314B between 2002 and 2003 as a direct result of the rumour that there was mercury in the fish).

But the area in question is not principally a fishing area - it is extremely rich in rare and exotic species, has already undergone tourism investment and is earmarked for further development. It has long been recognized as a province with excellent potential for development of an eco-tourism sector. If the marine environment was damaged, the ability for that sector to survive or grow would also be thwarted. Indonesia is committed to the principle of environmentally sustainable tourism, so the NSWA asks the provincial government of North Sulawesi to come to the protection of its existing investors in the tourism sector.

North Sulawesi's marine environment contains many species that are on the endangered species list e.g. coelacanth. As the confirmed host of the World Ocean Summit in 2009, North Sulawesi has a responsible to the international community to protect those species.

**A few comments from respected and knowledgeable people in support of protecting the environmental quality and sensitivity of the area are included below**

- "On the island of Sulawesi, the area of Pulisan (a village at the north point of the island near the PT. MSM Mining STD discharge) has more species than the combined areas of the Togeian Islands and Banggai, (315 species from 44 research locations). Because of the high diversity of the corals, the Pulisan area is located within the 'Golden Triangle' of biodiversity.  
**Ginnette Allard; Patric Scaps & S. Berimpon (Renowned international and local marine scientists).**
- "During the course of my career I have had the opportunity to visit thousands of places and to see some of the most magnificent things on this blue planet of ours. After my first visit to Lembeh Strait in 2000 I realized that this place was one of the most incredible underwater venues on our planet...Lembeh Strait is an incredibly rich, rare and vulnerable environment. The volcanic sands that line the bottom of the strait provide a very nutrient rich and unique habitat for a very diverse set of organisms that occur in few places on this planet and more importantly new species are continually being identified in this strait. The strait is a place to come and see organisms and their behavior that cannot be seen anywhere else on this planet. The strait offers a macro-habitat that is very different to that of a coral environment and that environment supports a very different group of benthic organisms that rely on this rich volcanic substrate for survival. A change or introduction of foreign materials such as silt or mine

tailings will impact this unique environment in a negative manner causing habitat degradation and the loss of biodiversity."

**David Doubilet Contributing Photographer, National Geographic Magazine**

- ".....such ventures routinely deposit tons of waste materials that make their way to the sea, which in turn, habitually cause severe degradation of the local marine environment. Such mining developments create a negative biological impact wherever they occur, but the idea that it might possibly happen in North Sulawesi is particularly alarming to anyone who understands the biological significance of your region.....In all our travels around the world over the past 40 years, we have never found another locale with greater marine life diversity, which includes the largest concentration of rare and exotic marine species discovered anywhere. The simple fact is Lembeh Strait and its environs are a natural marine treasure, not only for Indonesia and Southeast Asia, but also for the world.

**Ned DeLoach, President of New World Publications**

- "There needs to be good work done on looking at the sustainability of the livelihood of people in this area along with preserving the reef environments."

**PT Meares Soputan Mining, 08 June 2006**

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