DRAFT Response to Xstrata/Indophil/SMI’s ESIA of the Tampakan Copper-Gold Mine Project in Mindanao, Philippines  (September 2011. Last updated 03 July 2012)
by Dr Robert Goodland and Clive Montgomery Wicks
(Without Prejudice)

The Tampakan mine has a high potential for loss of life and high environmental damage
(The Tampakan Mine will be a Risk forever)

Executive Summary: The International reviewers have serious concerns about many issues in the Environmental and Social Impact Assessment. Xstrata/Indophil/SMI’s ESIA, which is the internationally accepted way of assessing projects, reviews a very dangerous mining plan. The stakeholder and economic analysis, risk assessment and resettlement plans are badly flawed. Xstrata failed to discuss their project properly with either the Secretary (minister) of the Department of Agriculture (DA) or the Administrator of the National Irrigation Authority (NIA), representing major stakeholders. Currently the DA and NIA have publically opposed the project as it will damage national and local plans for irrigation and agricultural expansion and development. In short, the mine will negatively impact food security.

Unfortunately the ESIA is not mandated under Philippine law which requires an EIS (Environmental Impact Statement) and the EIS does not include the same level of detail as the ESIA and hence some of the risks to life and the environment shown in the ESIA are not highlighted. To avoid this problem in future the reviewers recommend that the Philippine Government mandate the use of ESIs and require them to be reviewed by an expert independent review body.

The ESIA exceeds 3,000 pages but it omits other potentially severe impacts in an area of high seismic activity, on local populations and on important agricultural areas, namely the ore conveyor/pipeline system to the coast and the coal fired power plant. However the ESIA includes enough evidence needed to decide that the risks of mining in Tampakan are too high. The reviewers agree with Xstrata/SIM engineers who state that “The Tampakan mine has a high potential for loss of life and high environmental damage if a failure of Dams or Rock Storage facilities occurs”. The reviewers totally disagree that SMI/Xstrata can solve the problem simply through the design of dams and other installations to the highest International standards. International engineering best practice has often failed in the past. It has been reported that up to 16 tailings dams have failed in the Philippines in recent years and many more have failed in other countries. Recent earthquakes in Japan and New Zealand have shown the damage that Earthquakes can cause even to the best designed structures.

The reviewers consider the risks are far too high for local government and communities to bear particularly as they will have to bear the risks forever (in perpetuity) while Xstrata/Indophil/SMI will only bear them for 20-25 years, the life of the mine. The reviewers do not believe that such a mine proposed by Xstrata, registered in UK and Switzerland would be accepted by the Swiss or the UK Government.

Mining in this conflict area should not be approved on environmental, sustainable development and human rights grounds as outlined below.

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1 Page 42 of Mine Waste Management by Engineers Klohn, Crippen and Berger Tampakan Mine Project-ESIA- April 2011
2 Strategic Environmental Assessments (SEAs) should be undertaken prior to Critical Environmental Projects being authorized.
3 See Tailings Dams Risk of Dangerous Occurrences Lessons learnt from practical experience, Bulletin 121 UNEP 2001 which shows 221 tailings dam failures/incidents. See also http://www.wise-uranium.org/mdaf.html
Seismic Activity. A theoretically extinct stratovolcano complex lies under virtually the whole mine site and it is situated within 12 kms of Mount Matutum, a registered active stratovolcano. Stratovolcano’s are one of the most deadly as they are often filled with explosives and toxic gas capable of massive destruction killing many people. The mine is also situated above a number of fault lines some of which cross each other and much of the site is on a shallow aquifer. The mine is proposed in a critical watercatchment which serves agricultural production in central Mindanao. Storing 2.7 billion tons of toxic waste rock and tailings with a high arsenic content and a high PAD (potential for acid drainage) and leaving a 500 hectare waste rock facility over 300 meters high and a mine void over (800 )meters deep full of polluted water in a critical water catchment forever poses an unacceptable risk.

Any failure at any time in the future will lead to loss of life and major damage to water catchments and shallow aquifers which provide water for agriculture and many towns and villages.

It will also lead to massive losses of agricultural and fish production, increased risks to the population from landslides and the abuse of human rights because of opposition. This will further increase conflicts in an area which already has major conflicts. It may even completely destabilise the area. The risks of increasing instants of cancer in surrounding villages are also unacceptable.

Induced Seismic activity. The mine could make the current situation worse as it could induce greater seismic activity resulting in self-destruction of the mine and this will ruin or seriously damage water supplies, agriculture and fish production and endanger many lives.

Climate Change. Already CC seems to be increasing the risks of severe weather events such as hurricanes and torrential rains beyond historic records but is also expected to reduce the amount of water in the months June – December in South Cotabato by up to 20% within 30 years, causing serious problems.

Risks of Waste Rock Storage. Xstrata/SMI does not emphasise it, but the risk of the 300 meter high waste rock storage facility, covering 500 Hectares, being open by seismic activity or storms and causing acid drainage and release of arsenic is also very high. However they admit that there is a fault line under the Waste Rock Storage facility. The ESIA clearly demonstrates many of the risks and these should have been adequate for the company to decide not to mine. They cannot reasonably ask civil society and the RP government to accept the risks in perpetuity just because of massive profits from the mine and leave after 20-25 years. The DENR/MGB should never have approved mining exploration and forest destruction on the Mount Matutum range as it is a vital water catchment and should be protected by law and reforested. DENR should enforce environmental laws and not allow exceptions or allow companies to bypass them. The water catchments on which the towns, villages and the vast agricultural lands of four provinces depend should not be mined by SMI/Xstrata/Indophil or any other mining company. Deforestation has already damaged the water catchments on the Mount Matutum range and the remaining tropical forests, particularly old growth rainforest, which should be protected in accordance with the law and Presidential Executive Order No. 23. The mountain range should be reforested and protected primarily by the Indigenous People who live in them.

Economic Value. The claim is that the RP government will receive US$6 billion in revenues over the life of the project are doubtful (See paper on Transparency of payments by mining companies by Maita Gomes of BANTAY KITA, July 2011). In any event the cumulative physical risks far outweigh the economic advantages of this project. The financial liabilities and environmental burdens which Philippine governments will have to undertake are likely to far exceed US$6 billion and if agricultural production is reduced where will the money come from to repair the damage caused by the mine?

The mine will seriously undermine many of the government’s plans for rural and urban water supply, agricultural development (including plans to reduce rice importation), irrigation and forestry. What is the value of that damage? The mine does not comply with the Presidential Executive Order No 23 which places a moratorium on the cutting of all natural and residual forests.

Need for more environmental protection. This project illustrates the structural problem with the Department of Environment and Natural Resources (DENR). It is currently responsible for environmental protection and for promoting mining. These responsibilities conflict with each other. The reviewers do not know of any other country that operates a system like this. They recommend that DENR protect the environment, and that another department assume responsibility for dealing with mining licenses. The DENR and DA, along with other departments would still have to give approval for mining licenses, but there should be no confusion over what the prime responsibilities of departments are.
DRAFT FINDINGS
As there are over 3,000 pages in the ESIA it is difficult to detect the real issues from the less important information provided.

1. **The ESIA is not fit for purpose in its current form:** The ESIA does not include all the impacts of the project. The impact of the pipeline carrying the slurry and ore to the coast across many rivers and stream and the impact of energy generation installations at the coast are not included. The routing of the conveyor system is important and should minimize displacement of people and conserve most of the forest and other habitats. Threats to and from the pipeline must be clearly spelled out. There is no analysis of the resettlement of inhabitants which would be required to allow these operations to proceed.

2. **Stakeholder analysis:** The stakeholder analysis is flawed and does not meet International or even the company’s own standards (Xstrata’s Performance Area Standard 1 says “all stakeholders, especially potentially impacted people, in the sphere of influence must be identified and all major positive and negative impacts identified”).

   The Stakeholder analysis should have included all water users of the six rivers, multiple streams, shallow aquifers, lake ecosystems and artisanal fishermen and on the shallow coastal marine ecosystems. Some studies were undertaken but the water users are not included/accepted as official stakeholders or the risks to those communities acknowledged. Was this done because the project feared too many people would oppose the mine?

   This is clearly required under the DENR Procedural Manual for DAO 2003-3 page 73 Para A Direct Impact Area/Zone which includes:
   - **Areas directly vulnerable to potential flooding or inundation that may be caused by the project**
   - **Areas along main tributary downstream of the river system that will be the receiver of waste discharges**
   - **Catchments areas of river systems or watersheds**
   - **Ancestral domain of indigenous communities that may be directly affected by the project**

3. **Risk analysis is poor:** The ESIA needs to start by making the case why the mine needs to be open cast rather than a tunnel mine which has much less damaging impacts. In tunneling, all solid and liquid waste is returned underground with little or no surface storage. This prevents lagoon ruptures and erosion of reject piles and reduces the risks of cancer around mine waste.

   The ESIA does not explain why all the waste rock can’t be stored in the Mine void instead of building a mound over 300 meters high.

   The ESIA should explain how the mine is going to avoid the same problem as the 1996 Marinduque island catastrophe of the Marcopper Mining Corporation where the drainage pipe from the mine void got blocked, the dam breached and the toxic water escaped destroying a river ecosystem.

   Tampakan’s ESIA should then look at the damage the mine will cause to the critical watershed which is the source of water for many towns and villages as well as agricultural schemes in four provinces at a time when the Philippine Government is trying to reduce rice imports from 1.3 million tons to 600,000 tons.

   **There are multiple and cumulative risks:** Militant activity (4 groups were operating in the area when we visited in 2009), climate change risks, high seismic activity, risk of building on fault lines, risks of mining in unstable terrain with frequent landslides, risk of mining in an aquifer, risks to many rivers, streams and springs many of which travel underground, and risk to shallow aquifers (only 30-50 meters deep) in the Koronadal valley.

   Much forest has been damaged or destroyed and the mine proposes to destroy even more including some of the protected old growth forests which will increase vulnerably. The risks from the mine itself are much higher than predicted by SMI/Xstrata.
The first admission that the risk is high is on page 42 of the Mine Waste Annex which states: "Following a preliminary dam break analysis the TSF has been given an Extreme Consequences Classification during operation and closure due to high potential for loss of life and high environmental damage if failure occurs. This classification also applies to Waste Rock co-disposal with tailings in TSF. The selection of extreme classification means that the structure is designed to the highest level of protection consistent with International dam engineering practice".

The risk of building dams on major faults is far too high. 16 major tailings dams have collapsed in recent years in the Philippines. The buildings in Christchurch in New Zealand were designed to withstand earthquakes but they were destroyed and people died. If the mine causes induced seismic activity it may be the cause of its own destruction.

While SMI does not admit it, the risk of the waste rock storage facility being open by seismic activity or storms and collapsing is also very high. No mention is made of the risk of cancer to people in nearby villages.

Why did the company help build a disaster centre in their concession if the risks are low?

4. Human Rights: Many Indigenous Peoples rely on the water catchment for survival and have Certificates of Ancestral Domain Title (CADTs) to the mine site area. They rightly fear the destruction and pollution of their forests, rivers, streams and lakes on which their livelihoods depend. Their rights must be respected, not risked. Philippine NGOs claim that the Free Prior and Informed Consent (FPIC) process was achieved by a seriously flawed and illegal FPIC process. All affected IPs and other stakeholders whether resident or dependent upon the water resources must be told the truth about the risks.

Free Prior and Informed Consent: When SMI/Xstrata write: “that they will do the public consultations around the end of September”(2011). This shows a total lack of understanding of Philippine law and international ESIA practice. Public consultation is a process that starts before the ESIA begins and lasts throughout the c-2 year ESIA period, and afterwards. FPIC may or may not be granted when the ESIA's mitigation plan or Plan of Action comes out and becomes the Benefit-Impact Contract (BIC). When that BIC is debated widely, based on peoples 2 years of previous consultation, only then can the people give or withhold FPIC.

It is also not clear how the company is going to get FPIC bearing in mind that it is not just the Indigenous people who live within the concession who will need to give their consent. The company will also have to get FPIC from all the other indigenous people who will be affected by the mine including all those who live along the rivers and also those who depend upon the fish resources of Lake Buluan. The company will have to explain the risks of the project to all stakeholders as part of the process.

5. Resettlement: 4,000 people including some 3,000 Indigenous People are to be resettled. It is well known that resettlement plans, particularly for Indigenous People, often go wrong.

Statements in the ESIA show a poor understanding of Indigenous People (IPs). It states that their income is 34% below the National GDP and 27% below surrounding areas. Indigenous people have different values and don’t work in the GDP system. They place values on things that GDP does not usually value such as fruit, nuts, dyes, building materials, fish, game, medicines, the climate of the forest, the spirits of the forest etc. When they lose their forest the IPs often lose what gave meaning to their lives; in some cases they simply give up and die.

Human Displacement: has it been minimized? Have new sites been found in consultation with oustees? Are oustees in agreement with the new compensatory sites, houses and small-holdings they have to be given? Any dwelling 1000m either side of the conveyor system and construction/maintenance roads also need help in resettling, hence must not be excluded from the involuntary resettlement arrangements.

The social and environmental impact of migrants on IPs has not been adequately studied. Miners bring new problems. They and their camp followers will outnumber the local people; further destroy remaining forests for building houses and for fire wood etc. They often create major social and health problems. (See additional notes on Human Rights at end of this draft paper).
6. **Elevation:** DENR does not generally support mining at over 1,000 meters yet much of this mine is at 1,300 meters. It is illegal to destroy old tropical forests yet SMI/Xstrata proposes to destroy 1,350 hectares of tropical rainforest including 880 hectares of Montane Rainforest which are at the source of a number of tributaries of the Mal River. The ESIA and DENR need to explain why these are acceptable?

7. **Mining plans conflict with Government Agricultural plans:** Currently Xstrata have no authority from the Secretary (Minister of Agriculture) who opposes this mine. The ESIA does not appear to recognize the need to fit into the National Plans for Agricultural Development, Irrigation and forestry or Presidential Executive Order No. 23 dated 23rd February 2011. There are 80,000 farmers farming 200,000 hectares in South Cotabato alone. No one should take risks with their livelihoods and the food security the land provides for the people. According to the Department of Agriculture (DA) there has been no consultation to date between the Department and SMI/Xstrata. This is totally unacceptable as the DA is a key stakeholder mandated by the President to produce self-sufficiency in rice production by 2013.

8. **Rice production plans:** Currently Xstrata have no consent from the Administrator of the National Irrigation Authority (NIA) who opposes this mine. The government plans to reduce rice imports from 1.3 million tons in (2010) to 600,000 by 2011. This cannot be achieved if watersheds are damaged. Mining conflicts with irrigated rice production and fish farming and is an incompatible activity when introduced into a major agricultural producing area. The main dam for the NIA is on the Mal River just below the proposed mine and will be negatively affected. No mining company should initiate a mining project in a major water catchment on which a vast amount of agricultural production depends in 4 Provinces. Other similar historical projects such as in Marinduque have polluted the waterways and the marine environment. It has not been possible to clean up mining pollution in Marinduque and people are still suffering from it.

9. **Water Rights:** The ESIA recognizes that the proposed mine is within the water catchment of 6 rivers: the Altayan, Dalal, Manit, Mal, Manteo and Taplan and actually covers almost completely the source of some of these Rivers notably the Mal, whose tributaries will be ruined inside the concession.

   If the Tampakan Copper-Gold mine is approved all the communities on rivers and all other streams originating inside the concession will lose their water rights as the water rights become the property of the mining company by the Mining Act law, which can use, divert and control the water, with very limited control by the local governments.

   These rivers provide drinking water to Koronadal/Marbel and numerous towns and villages, as well as water for agriculture and fish ponds all the way down the rivers to the sea, as well as to Lake Buluan the 60 sq km fresh water Lake on which 40,000 Muslims depend for survival. Damage to this lake is likely to result in severe unrest with the Muslim community and possibly violence. Some fish species migrate up the rivers to breed and this will not be possible in some cases notably on the Mal River as the migratory route will be blocked or destroyed.

10. **KORONADAL Valley Aquifers:**

    The reviewers see no reason to change their views about the danger that the mine will present to the water systems notably the aquifers that supply the towns and villages, and the streams and rivers that supply agricultural lands, fish farming, particularly in Lake Buluan, and to the artisanal fishermen who fish in the shallow seas around this part of Mindanao.

    The reviewers continue to base their views on the independent report, **GROUNDWATER QUALITY OF KORONADAL VALLEY, SOUTH COTABATO** by Fortunato S J Milanes, Supervising Geologist Mines and Geosciences Bureau R-12, Department of Environment and Natural Resources, Koronadal City, March 2003. (Why is this key source document excluded from the ESIA and the EIS?)
Extracts from the 2003 Report: 4.0 HYDROGEOLOGY:

4.1 Hydrogeologic Units

“Four hydrogeologic units with aquifer characteristics are recognized in the valley area as evidenced by presence of abstraction facilities either by tube wells or springs. These hydrogeologic units, some composed of several rock formations, are Recent Alluvial Deposits/Matulas Gravel Deposits, Bianan Limestone, Mount Matutum Volcanic and Pyroclastic Rocks, and Sinolon Formations.

**Recent Alluvial Deposits/Matulas Gravel Deposits:** “This hydrogeologic unit occupies about 56% of the total valley area. This semi-confined aquifer is the major source of domestic water of **four of five municipalities within the valley**. Based on geo-electric study made by Koronadal Water District in 1982, the resistive layer in the valley extends from ground level down to a depth of 50 – 100m and represents an aquifer made of sand and gravel formation. It was noted that the resistive section is thicker and centered along the Marbel River course. MGB mapping revealed depth to water table is deeper in the upper Tupi area at 33m but becomes shallower from Tampakan to Koronadal and Lutayan areas.

**Bianan Limestone:** The limestone aquifer occupies the northwest part of the valley on the Tantangan side. It underlies about 7% of the valley area and is the major source of domestic water for Tantangan residents. Numerous scattered springs of moderate yield characterize this aquifer.

**Mount Matutum Volcanic and Pyroclastic Rocks:** The various volcanic and pyroclastic rock formations underlying the Mount Matutum vicinity comprise an aquifer system that supplies the domestic water needs of at least **ten mountain Barangays in the area**. This hydrogeologic unit occupies about 21% of the total valley area and is characterized by springs of moderate yield.

**Sinolon Formation:** Sinolon Formation underlies the southwest side of the valley along Roxas Range. This predominantly tuff formation is a minor aquifer system that supplies the water needs of some mountain localities in Koronadal.

The aquifer is most probably made up of the sandstone-conglomerate Interbeds within the formation that supplies the few springs mapped in the area the most notable of which is El Gawel at Brgy. Saravia in Koronadal.”

**Groundwater Flow and Recharge**

“The two most important recharge areas within Koronadal Valley are Mount Matutum (Mount Matutum Volcanic and Pyroclastic Aquifer) and Roxas Range (Limestone Aquifer). In the Mount Matutum and Limestone aquifers, recharge mainly take place from direct infiltration of rainfall and run-off flows through secondary permeability within the dissolution channels of the limestone and fractures in the volcanic rocks. The discharge of the two systems is represented by the outflow of springs along the hill slopes that ultimately join the surface water in the valley.

The alluvial aquifer system is recharged both from direct infiltration through the permeable soil surface particularly along the lower elevations in the valley and as flow continuities from the limestone and volcanic aquifer systems.

The groundwater flow in the valley has a convergent pattern, that is, the water from the southern, eastern, and western highlands flow toward the valley and drains into a north-northwest direction”. (Extracts)

The aquifer where the pit lies was characterized as dominantly inter granular water flows through the rocks rather than through cracks or fissures or does not flow at all as in a confined aquifer with impermeable boundaries. That probably explains why the pit water is expected to contaminate the groundwater if left untreated. (Reference ESIA page 236).

The capacity of the mine drainage tunnel water treatment plant will be increased at closure to accommodate the treatment of additional excess final void lake water. The quality of void lake water is not expected to improve after closure and excess pit water is therefore expected to require treatment and controlled discharge in perpetuity.

**What is the cost of perpetual water treatment of the pit water and who is going to maintain the plant and pay the costs into the future, forever?**
11. **Warning from Geologists:** The ESIA ignores warnings from some Philippine geologists: “The deposit lies within the Cotabato Fault Zone, a West-Northwest Strike slip fault Zone. The presence of faults on the proposed mine site presents a danger to the facilities that will be constructed such as the tailings pond”. (*Catherine Ambon, UP and NIGS.*) The site is sitting on a number of fault lines and stratovolcano complex and is only 12 kms from Mount Matutum a registered active volcano⁴. A Stratovolcano is one of the most deadly as it can be filled with explosives and toxic gas capable of killing many people. How can Xstrata/Indophil/SMI consider building a mine and dams on a ring of volcanoes and a bed of fault lines?

The area is criss-crossed by fault lines (see figures 2.3 and 4 in the Geological review of the Tampakan Project by Middleton et al (*A Geological Review of the Tampakan Copper-Gold Deposit*, Southern Mindanao, Philippines, PACRIM, Adelaide, SA, 19 - 22 September 2004.)*

**Induced Seismic Activity:** Induced seismic can occur when miners drill or mine in an area of high seismic activity, particularly when they mine near fault lines and active volcanoes. In some cases it can even be caused by drilling or by creating dams. It can increase the number and severity of seismic shocks very considerably and even destroy mine facilities. Xstrata were warned about this at a meeting in London and have not responded.

The risks to the aquifers and other water resources of having a toxic mine void (800 meters) deep covering (500 hectares) and necessitating storing *forever* thousands of tons of toxic water and 2.7 billion tons of highly toxic waste rock pile over 300 meters high and tailings high in PAD (Potential for Acid Drainage) and arsenic in a critical water catchment is unacceptable.

The chances of the 2.1 Km long and 280 meters high tailings dam and the 0.8 Km long and the 150 meters high fresh water dam surviving for any length of time is doubtful. The risk will become much higher as time goes by particularly after the engineers leave after mine closure. The chances of water passing through the Toxic waste rock storage and other toxic sites and then into the environment is very high, particularly if damaged by the fault underneath.

**Mine Void:** No explanation is given as to why a vast 800 meter void is needed or why the toxic rock cannot be put back into the Void again. The ESIA should explain why the company is not following international practice as defined in Bill Prices Predictions Manual, http://www.mdag.com/presentations/A1957%28Price%202009%29.pdf

The escape tunnel from the Tampakan void has a high risk of rupture from seismic activity, corrosion or plugging just as it did in the Marinduque tunnel which destroyed the Boac river system. SMI/Indophil/Xstrata states that the mine pit will have to be managed in perpetuity. How will that be done and who will meet the costs of maintaining it after mine closure?

How can the company guarantee that the drainage escape tunnel will not be destroyed by seismic activity or corrosion in the future? *They can’t!*

**Subterranean water flows, aquifers and Lakes such as Lake Buluan cannot be cleaned up.** Claims that the mining company can capture polluted water and treat it need to be fully explained and justified by the ESIA. The area is a shallow aquifer and is highly permeable and a lot of polluted water will escape underground where it cannot be cleaned up.

Storing 1.1 million tons of toxic tailings and 250,000 tons of high PAD and medium to high arsenic content waste rock in the tailings storage facility which will be sited in the Mal River catchment is a very risky strategy bearing in mind the numbers of people living and farming along the river.

**Ore Transportation:** The ore will be transported as slurry by a pipe to the coast. The route is not divulged in detail by the ESIA. The risks it will pose are not identified or accepted. At some point the toxic slurry water will have to be released. Where will that water be discharged to and how much will escape from the pipe particularly if it is damaged by seismic shocks or militant activity?

**Cyanide:** We now know that the company will not be using Mercury or Cyanide to extract the gold as they are exporting the gold and copper slurry after drying for processing overseas. Whilst this will reduce chemical damage in the Philippines it does mean that virtually all the added value will be done overseas. What will the Philippines profit from allowing SMI/Xstrata to export dry slurry and how many US$ billions will SMI/Xstrata make? Is it US$ billions per year?

12. Climate change: The section on climate change is weak. “The climate has generally been mild” is an understatement to say the least. Villages are often flooded by heavy rains. Climate impacts are changing as demonstrated by the December 2011 hurricane in Mindanao which caused so much damage and killed over 1,000 people. Members of the Climate Change Commission told the authors that their scientists predict that the water supply to central Mindanao including South Cotabato will decrease by up to 20% in 30 years. These scientists stress that all forests must be left intact, conserved, and improved to protect water catchments. This is fully supported by the reviewers. See also: PHL’s Policy on Mining at Odds with Climate Change Advocacy, June 2011.

13. Forest destruction in critical water catchment: The Mine proposes to destroy 4,000 hectares of forest, including 1,350 hectares of Montane rainforest which includes 40% of the 2,200 hectares of Tropical Upper Mountain Rainforest in the Mining Concession and this includes old growth forest which is now protected by law. The Philippines needs to protect and improve water catchments, not damage them further. This action is against the law to protect old growth forests and Philippine Presidential Executive Order No. 23, dated 23 February 2011.

14. Role of Rainforest: ESIA shows poor appreciation of Rainforests. Rainforest controls the micro-climate of the area, attracts rain and releases it slowly and protects the environment and people. It is rich in biodiversity, a source of food, water and medicines for IPs and of the many communities living along the 6 rivers. The forest needs to be protected and expanded not damaged (rationale for Presidential Executive Order No. 23, 2011)

15. Siltation of water courses during construction: The ESIA agrees that siltation of water sources will start the moment construction starts. The authors believe that this will be more serious than predicted and siltation/pollution of rivers and streams both above and underground will start as soon as construction starts and the protective forest cover is removed. The NIA (National Irrigation Administration) dam on the Mal River will be impacted.

16. Risks of Cancer: The ESIA does not report that there have been incidents of high levels of cancer near other polluted rock waste storage facilities from copper mines notably in the USA. The risks increase with the amount of arsenic in the copper bearing rocks. See Philippines Mining or Food? Page 115.

17. Gas and Greenhouse Gas: The gases from the mine will be unacceptable in some areas. It is claimed that the Greenhouse Gas that the project will produce will be less than 0.4% of all Philippines greenhouse gas emissions. This is a massive figure for one mine/industry.

18. The economic model is neither complete or fully accurate: The mine is likely to undermine the investment by the Philippine Government, World Bank and EC and other donors in water projects, reforestation, irrigation schemes, agricultural development, fish farms and eco-tourism in this area. No value is given to the biodiversity or environmental services as they stand at this present time or the economic value of the crops and industries which these services support, or the environmental and thus economic losses which will occur as a result of the mine’s operations. Some economic figures are provided by the Chamber of Mines which are questioned by other economists.

No valuation appears to have been made of the cost if the 6 rivers are polluted with acid mine drainage and arsenic-laden water. Nor has a valuation been put on the cost to Municipalities that depend upon the water provided by the shallow 30-100 meters deep aquifers in the Koronadal and other valleys if these water supplies are polluted?

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The claims of benefits to the IPs, Local Government Units and the National Government of Philippines are seriously doubted as there is no proof that the Philippines have ever received the level of benefits claimed in reports. (See paper on *Transparency of payments by mining companies* by Maita Gomes of BANTAY KITA, July 2011).

**The long term liabilities that the government, both National and Local, and civil society will have to carry forever are likely to far exceed any short term gains the government may receive in revenues.**

The link between impacts and mitigation are totally inadequate and not even feasible. One cannot clean up pristine aquifers and underground water flows once they have been polluted.

The ESIA is attempting to support a project which will probably cause loss of life, massive environmental damage and human rights abuses, notably the right to life, health, food, clean water and a sustainable livelihood.

The authors acknowledge that the company has provided some useful rural development projects to the local community of Tampakan but this cannot replace the damage the mine is likely to cause them and many other stakeholders whose rights have yet to be recognised.

The Norwegian government sold US$800 million shares, its total investment in the mining giant Rio Tinto because of the severe environmental and human rights abuses caused by the operations of the Grasberg mine in West Papua in which Rio Tinto has a major shareholding. The Tampakan mine could become one of the world’s most controversial mines and result in financial institutions cutting their financial risks and withdrawing finances to the companies involved.

Finally, Xstrata’s world-wide record.

There are concerns about Xstrata mining operations in a number of countries including:

- Xstrata in Colombia - El Cerrejon coal-mine project.
- Xstrata in Australia - mainly coal mining. Latest focus is FoE opposition to the Mega Wandoan Coal Project (http://www.envlaw.com.au/wandoan.html, but there are a number of long-standing coal issues, especially in the Hunter Valley. There is also a historic case of lead poisoning at the Australian Mount Isa mine.
- Xstrata in Argentina - mainly Alumbrera Mining in Glaciers
- Xstrata in Chile - The Transelec powerline for mines in Patagonia & worker relations at Collahuasi (a giant copper mine)

There are also concerns about Xstrata’s link to Glencore, a massive company based in Switzerland about which there have been a number of complaints.

WGMP-UK Members : Cathal Doyle, Irish Centre For Human Rights; Frank Nally SSC, Columbans; Ellen Teague, Vocation for Justice, Columbans; Geoff Nettleton, PIPLinks; Andy Whitmore, PIPLinks; Clive Wicks, Conservation and Development Consultant; Dr Robert Goodland, Environmental and Economic Consultant.
Background of the Reviewers

Both reviewers are members of WGMP-UK (Working Group on Mining in the Philippines - UK) and IUCN-CEESP (IUCN Commission on Environment, Economy and Social Policy). They are both over 70 and with many years of experience in agriculture and the environment.

Dr Robert Goodland was the former Senior Environmental Advisor to the World Bank Group and the technical director of the Extractive Industry Review (EIR).

Clive Wicks has 27 years of working in engineering and agriculture development, plus 26 years working in the environmental sector. He was the former Head of WWF UK International Programme covering Asia, Africa and Latin America and was until recently a Vice Chair of IUCN-CEESP the IUCN Commission on Environmental, Economic and Social Policy. He is also a Consultant on Conservation and Development Specialising in the impacts of oil, gas, mining and bio fuels projects.

Robert and Clive are Co-Authors of the 2009 report *Philippines Mining or Food?* and authors or co authors of other environmental publications. Both have experience of reviewing ESIAs and have run training courses for NGOs and Government Officials on both SEA (Strategic Environmental Assessments) and ESIAs and advise governments on implementation.

**Note:** The reviewers are not anti-mining. They fully recognize the need for mines and minerals but insist that mining has to be done in a way that does not damage other more sustainable economic enterprises such as agricultural production, fresh water and marine fish farming and eco-tourism potential.

**Note on Human Rights Abuses likely to be caused by the project**  
*(This section to be reviewed by anthropologists)*

- Violations of the right to an adequate standard of living, including the right to food – as a consequence of the impact of mine related pollution and environmental damage to agriculture and fisheries, which are the main sources of food for many people in the Philippines
- Violations of the right to gain a living through work – also as a consequence of widespread damage to agriculture and fisheries, because these are also the main sources of livelihood for many people in the Philippines
- Violations of the right to clean water – which occur when mine spills and waste materials pollute water used for drinking and other domestic and agricultural purposes. Pollution of the aquifers in the Koronadal valley is a high risk for 4 Municipalities
- Violations of the right to health – which arise from failure to secure the underlying determinants of health, including a healthy environment, and failure to enforce laws to protect the environment and prevent pollution
- The absence of any adequate monitoring of the human impacts of mining related pollution – despite the fact that the mining industry in the Philippines has a terrible reputation and is operating in densely populated area characterized by high levels of poverty and vulnerability
- Failure to provide affected communities with adequate information or ensure adequate consultation with all the key stakeholders on the impacts of mining operations on their Human Rights
- Failure to ensure access to effective remedy for people whose human rights have been violated

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