

## CASE STUDIES

### *VIETNAM - SAND AND GRAVEL MINING*

Because of excessive sand mining, the Mekong Delta is slowly disappearing and put 20 million people who lives in there put in a great danger (Environmental Justice Atlas, 2015). Every year 50 billion tons of sand and gravel is extracted from the region because of the demand for construction materials. One of the hot spots is the Tien River which is invaded by illegal sand miners however the problem is that this region provided the rice and food sourced for almost half of the country (Brunier, Anthony, Goichot Provansal & Dussouillez, 2014). For the Mekong Delta, flows are very important for the continuation of the ecosystem. In connection with new construction of new dams, speed of the flows in the Delta has changed and this increased the erosion of delta. According to the World Wildlife Federation's Greater Mekong Programme Researcher Marc Goichot, "nearly half the delta will be wiped out by the end of this century at this rate." (Beiser, 2018).

Another problem in the region is illegal sand mining. According to the Dong Thap police, 200 illegal sand mining boats were seen operating to extract a huge amount of sand from riverbeds (Vietnamnet.vn, 2013). 4000 families , 40 communities in Dong Thap province have affected from landslides and due to increasing sea levels, 12,000 people are displaced from Mekong Delta region. Only a few of the affected households were granted new land plots (Talk Vietnam, 2008; Viet Nam News, 2012). Moreover, local communities lost thousand of acres of rice paddies. (Talk Vietnam, 2008 & Toui Tre News, 2015). Scouring riverbeds muddied the water and this killed marine biodiversity. (Viet Nam News, 2012 & 2014). For implementation of alternatives, there are some obstacles such as cooperation between the government and the private sector for sand extraction (Vietnamnet.vn, 2013).

### *PERU - GOLD MINING*

Madre De Dios is one of the most biologically diverse places in the world. However, informal and illegal gold mining has rapidly deforested the jungle region. Only in 2012, Madre de Dios lost more than 50.000 hectares of forests because of artisanal and small-scale mining activities. Annually, an estimated 30 to 40 tons of mercury are dumped into the environment only in Madre de Dios. 1/3 of this production comes from illegal origin, and out of 30.000 people 10.000 are illegal or informal miners (Amazon Conservation Association, 2015).

Illegal mining harms the environment and human health even more than the legal mining activities because illegal miners are less careful and less motivated to follows regulations for mining activities. Illegal miners mostly leave the chemicals behind in open. The mercury released because of mining activities pollutes the rivers and transferred into the fishes, and it pollutes the air that we breathe. This is highly dangerous for human health. To deal with these problems, In cooperation with Terre des Hommes, a local cooperative named

Agrobosque works to diversify the incomes of 58 peasant families through cacao plantation and fruit production, fish farming and responsible forestry. Families receive training in agricultural technologies and training to run small business (Amazon Conservation Association, 2015).

### **BOTSWANA - SAND MINING**

Sand mining used in Gaborone, Botswana especially for the construction sector and urban development. The government, the private sectors and individuals focus on expansion in Gaborone with construction of residential areas and malls. These alarmingly high focus on construction led to the the formation of youth group cooperatives for sand mining especially near the farming areas like Stoneridge. Sand and gravel mining contribute 34,2% of Gross Domestic Product (GDP) for Botswana. According to the loaders in sand mining areas, they load 4-5 trucks per day. One of the biggest problem in the region is individual companies who mine the soil both legally and illegally. Since there are no strict rules for sand mining, miners just leave deep and wide pits open after they collected the sand and gravel, this widen to riverbeds and destroys ecosystems, forests, and agricultural activities. Moreover, sand mining creates problems in the region such as: spread of diseases such as malaria because of open pits, noise pollution because of tipper trucks which working day and night for sand transfer, floods because of destroyed riverbed, destruction of food sources because of floods and pollution, and organized crimes because of illegal sand mining. Illegal miners may carry (Madyise, 2013).

### **GHANA - GOLD MINING**

In Tarkwa, Ghana, livelihoods of local communities in rural areas got threatened by the expansion of concessions by the mining companies. The areas where locals engaged with farming activities are now opened for concession and mining activities in this area would create serious negative consequences on the livelihoods of locals because The Wassa West contains 44% of Ghana's closed forest and accounts for nearly 39% of cocoa production. The commercial farming was the main economic activity among the locals until mining activities overtaken farming as the single largest economic activity in the area. In 1997, earning from gold exportation accounted 94.5% of the total earning of the country from exports. To deal with the problems related to mining, several NGOs, GAG, OICI and WACAM, came up with different programs such as Alternative Livelihood "Hand in Hand Program" ,particularly for the affected farmers, to have equipped them with skills and knowledge in alternative livelihood activities, such as animal rearing, including poultry, grass cutter, snail and pig rearing. Also, they focused on capacity building/training, agriculture, micro credits, education, water/sanitation and community resilience and participation. (Adjei, 2007; Twerefou, Tutu, Owusu-Afriyie and Adjei-Mantey, 2015).

### **SRI LANKA - SAND AND GRAVEL MINING**

Maha Oya River, is one of the largest rivers in Sri Lanka and is one of the main sources of sand for the increasing needs in construction materials around the Asia. Maha Oya River is not only a very important source of water for domestic and industrial need but also it is the main source for local livelihood activities. Clay mining has created many environmental and socio-economic problems in the region starting from 1980s. For example: Due to loss of sand supply in the coastline, natural sand equilibrium of the beaches got broken and more than 1,000 of families lost their properties over the span of a 20-year-period as well as their livelihoods. Some of these displaced communities have been living in temporarily built sheds for nearly 3 years since 2009. Also, mining is a traditional activity for many locals however with the increasing industrial mining locals got hurt. Following this problems, through mobilization and street protests mechanized sand mining got prohibited and most of the areas declared as environmentally sensitive areas. At the end better practices were implemented for the locals and only artisanal mining activities allowed as a part of traditional livelihoods. (Karunaratne, 2015; Environmental Justice Atlas, 2016).

### **SERBIA, BOSNIA AND HERZEGOVINA - SAND MINING**

Extensive Sand mining is transformed the Drina River, which is a border between Serbia and Bosnia and Herzegovina. Because of excessive illegal sand and gravel mining, the surrounding forest belt has destroyed, fish stocks decreased, ecosystems demolished and drinking water polluted. Also, the holes left behind after the removal of gravel have been filled with waste, and larvae, mosquitoes and snakes have settled in them and become a threat to local people. The main problem for proposing alternatives or best practices is undefined property rights on the banks of the River. Permits for exploitation are issued under very suspicious circumstances from both the Serbian and B&H Governments. Also, only environmental NGOs and fishermen are interested in solving the problem. (UNECE, 2017).

### **SWEDEN - LIMESTONE MINING**

In Gotland, Sweden, limestone mining activities were dangerously close to the two protected natural areas: Natura 2000 and The Ojnare Forest. The Ojnare Forest is home for 265 red listed species and 3 of them only live in this forest in the entire world. Moreover, the mining area is very close to the natural water resources of North Gotland. Limestone mining pollutes the air, soil and water, leads to biodiversity loss and soil erosion. It is very dangerous for the water resources and forest biodiversity. Court decision to continue mining resulted with many protests such as people chaining themselves to the trees or candle light protects etc. Thanks to the protests and media attention to the conflict, the previous court decision was withdrawn to the favor of environmental justice. The company is no longer allowed to mine in the area. As an alternative to the mining, there is hope that the area might become a national park and serve to eco-tourism. (Rowley, 2012; Environmental Justice Atlas, 2014).

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