

## Indonesia Lake Toba

### *PT Inalum pays to conserve Lake Toba, North Sumatra*

#### SUMMARY

PT INALUM, an aluminium smelter and hydroelectric producer pays an annual fee to the North Sumatran district government for investment in the rehabilitation of critical lands in five districts within the catchments areas of the Lake Toba, from where the company draws its water for hydropower generation.

#### MATURITY OF THE INITIATIVE

Ongoing since 1985. Current status is unclear.

#### DRIVER

The company has an interest in investing in watershed protection to ensure suitable water levels in the lake for which it draws hydroelectricity for its production operations. The company has been accused of being responsible for the lowering level of the lake through its operation of the regulating the dams that control the flow of the level of the Asahan river, the only outlet of Lake Toba (the company's hydropower plant has had this responsibility since 1982).

[http://www.sea-user.org/news-detail.php?news\\_id=387](http://www.sea-user.org/news-detail.php?news_id=387)

#### STAKEHOLDERS

##### Supply

Five districts within the catchments that feed into Lake Toba.

There is no information available on the nature and extent of the activities sponsored by the scheme.

It is unclear whether this investment is connected to the provincial government's programme to rehabilitate the vegetative cover of over 100,000 ha critical lands in the Lake Toba watershed. The programme includes (i) rehabilitation of 50,192 ha and (ii) replanting in 54,378 ha of critical lands with perennial crops (estate crops and mountain horticultural gardens).

##### Demand

PT Indonesia Asahan Aluminium (INALUM) is a very large aluminium smelter (225,000 tonnes a year) located in North Sumatra, owned by the Indonesian government and the Nippon Asahan Aluminium Co Ltd (a 12-company Japanese consortium). The input material (bauxite) is not locally mined, but brought over from Australia to be processed here.

The plant is powered by two hydropower plants along the Asahan river (Sigura-gura 286 MW and Tangga 317 MW). Their production represents 80% of the hydroelectricity produced in North Sumatra, and surplus electricity was meant to be sold for public use, but the decrease in water level meant that this rarely happens and INALUM does not produce enough electricity to operate at full capacity.

<http://www.summitreports.com/indonesia4/inalum.htm>

##### Intermediary

Unclear if any.

##### Facilitators

Unclear if any. In 2002, the Governor of North Sumatra named a Coordinating Board for Lake Toba Basin Ecosystem Conservation, who is responsible for providing guidelines for planning and implementing pollution control and environmental rehabilitation programme. The board includes representatives from the related government agencies and the representatives of national and provincial NGOs- LTHF and the Samosir Lake Toba Foundation (Yayasan Peduli Samosir Danau Toba- YPSDT). It is unclear if INALUM's is collaborating with the Board's activities.

## MARKET DESIGN

### Service

*Water quality* (reduced sedimentation).

### Commodity

*Rehabilitation of existing ecosystems.* No information found on activities carried out.

### Payment Mechanism

Annual contribution from the company to a “Lake Conservation Fund” (Dana Konservasi Alam Danau Toba), directly to the Ministry of Finance.

This contribution includes existing provincial and district-level tax commitments (land and building tax and water use fees) amounting to US\$ 2.6 million /year) and an additional payment calculated on the difference between the exchange value of Rupiah and US Dollar in aluminium production sold (in 2002, for example, this amounted to Rp 23 billion or US\$ 2.4 million). Suyanto et al. (2005)

According to Moedjodo et al (2003), it is unclear to what this contribution has been being used and the North Sumatra government administration and DPRD (Provincial Parliament) have tried to obtain clarification regarding this. There is no information on their findings.

### Terms of Payment

On-going payments from downstream user. Conditions for investment upstream are unclear.

### Funds Involved

In 2002, INALUM's contribution to the fund was Rp 49 billion (approximately 5US\$). Suyanto et al (2005). According to Moedjodo et al (2003), the accumulated fee paid from 1982 to 1999 reached US\$ 59 million.

## ANALYSIS OF COSTS AND BENEFITS

### Economic

*Avoided costs.* The company pays lower water use fees than other users: Rp. 5.18 per cubic meter compared to the regular tariff that is Rp 75 – Rp 100 per cubic meter. In one year, Asahan Hydropower Plant uses approximately 2.9 billion cubic meters of water, thus making a saving of Rp 200-300 billion per year (US\$20-30 million) It is unclear whether these lower water fees are a consequence of this environmental agreement.

Moedjodo et al (2003) mentions losses in electricity production due to the low level of the lake in recent years, and this is likely to affect production. It is unclear whether the watershed management activities sponsored by INALUM have reduced these costs.

### Environmental

No information on the benefits of the watershed activities being sponsored by INALUM.

### Social

No information.

## LEGISLATION ISSUES

No information.

The institutions responsible for the preservation of the Lake Toba region are the provincial government of North Sumatra and the local governments of the five Districts in Lake Toba region, in this case the BAPEDALDA of North Sumatra (provincial-level Environmental Impact Management Agency) and the BAPEDALDAs of the five districts.

## MONITORING

No information. Programme has been ongoing for the past 20 years.

## MAIN CONSTRAINTS

No information.



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## MAIN POLICY LESSONS

No information.

## OTHER INFORMATION

## CONTACT

## REFERENCES

Suyanto, Leimona,B., Permana, R. P. and Chandler, F. 2005. Review of the development of environmental services markets in Indonesia. Bogor-Indonesia, World Agroforestry Centre (ICRAF). RUPES Working Papers.

[http://www.worldagroforestry.org/sea/Networks/RUPES/download/Working%20Paper/ReviewMarketESIndonesia\\_Final.pdf](http://www.worldagroforestry.org/sea/Networks/RUPES/download/Working%20Paper/ReviewMarketESIndonesia_Final.pdf)

Moedjodo, H., P. Simanjuntak, P. Hehanussa and Lufiandi. 2003. Experience and Lessons Learned Brief for Lake Toba. World Lakes Network. [http://worldlakes.org/uploads/Toba\\_12.07.03.pdf](http://worldlakes.org/uploads/Toba_12.07.03.pdf).

## LINKS

<http://www.summitreports.com/indonesia4/inalum.htm>

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