SUSTAINABLE MINING – SUCCESSFUL EXAMPLES

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Mining activities harm the soil, the air and the waters of the region where they occur. This leads to unavoidable conflicts with the neighbour communities. Three cases of successful, or not, relationships between mining activities and communities are discussed.
Prof. Joaquim Maia, 1973, I ENTM (it was not ENTMME at that time):

“ethical content of mining” =

= as mineral resources are natural and non renewable, in principle they belong to all mankind, not only to the few privileged people who have the access to its exploitation.

They must be exploited in such a way to preserve them to the maximum.
Mining has, as a consequence, an ethical content that very little human activities do have.

In practice, this means:
- in prospection, proper reserve evaluation;
- in mining, maximum economic extraction of the ore;
- in beneficiation, maximum recovery of the values.

Prof. Maia’s talk ideas are from **1973**! 18 years later, ONU’s World Commission for Environment and Development, leaded by Ms. Gro Harlem Bruntland, established the concept of SUSTAINABLE DEVELOPMENT.
concept that was familiar to Brazilian mining since a long time ago!
first case:
Pedreira Itaquera (Itaqueru Quarry)
• the quarry started activities producing cobblestone for urban pavement in 1923.
• In 1957 it started to produce crushed stone and artificial sand as an industrial activity with industrial equipment.
• its site was a remote one, very far from the city, in a farming area.
cobblestone quarry – industrial quarry
but the city grew and its neighbourhood has been occupied. In the 60’s a dwelling neighbourhood was built

- soil vibration;
- air impact due to blasting;
- visual impact;
- topografic changes;
- intense traffic of big trucks.
conflicts

• 1956 – undersigned petition to close the quarry;
• 1978 – the Prefecture intimated the quarry to close ...

... but there was no money to indemnify the company and it went on producing crushed stone.
evolution

- 1989 - the local community organized a great assembly to discuss the problem and to press the company.
- 1991 – under pressure, the company hired specialized assistance
- 1992 – the company started to dialog with the community.
as a result:

- blast pattern reviewed,
- water aspersion introduced to reduce dust emissions,
- green barriers planted around the quarry,
- safety signalization implanted in the whole area,
- degraded areas started to be recovered,
- a program of relationship with the community was started including talks, visits to the quarry, environmental education etc.
- upgrading construction works in the neighbourhood,
- building material donated to the community,
- equipment for construction in the area lent by the company.
quarry decommissioning

- as all these measures were costly, in August 1999, the quarry finally decided to close. But it would not stop its activities. The cave was transformed in an inert materials landfill.
- a strategic decision, as the quarry had reserves to go on for 8 more years (20,000 m³).
- in the same spirit, careful planning was done in order to allow for the future utilization of the land for other purposes after the end of the cave’s filling.
change of objectives – inert materials landfill

should the Prefecture build such a deposit, it would have to purchase that estate. In fact it was a very convenient transformation as:

- the area of the estate was 300,000 m²;
- the volume of the cave was 6,500,000 m³.

A minimum compaction rate of 1.2 kgf/m² was defined in order to be able to support two-level constructions in the future. Only inert material was accepted in order not to produce leachate.
The cave has been sealed with impervious material to prevent underground waters contamination

1999-2006: 7,968,000 t disposed
landfill
second case:
MBR’s ÁGUAS CLARAS MINE
ÁGUAS CLARAS MINE

mine opened in 1973. produced 290 Mt of hematite products, removed 200 Mt of overburden mining relation = 0.7 first big Brazilian mine to be decommissioned total area = 2,000 ha, 350 ha really impacted R$ 50 million from 2002 to 2006
MATA DO MATA DO
JAMBEIRO JAMBEIRO
third case:
PROJECT VIVA RIBEIRA
(“long life to Ribeira River”)

sand dredging at the Ribeira de Iguape River

pilot’s action
cooperative’s stockyard:
clean toilets, nurseries, canteens
These facilities started to attract a special kind of truck drivers – those who bring their wives or children along, Christian drivers, people who are honest and correct and use to avoid trouble. By themselves, they managed to purge the cheaters, the riotous, those who travel with prostitutes. As a result of this self-selection, there was a sensible reduction in tricks, pure cheats, or bounced checks received by the cooperative.

The gallery forest was recovered by the cooperative members. Reforesting action favoured the fruit native species, which attracted birds, small mammals and... fish – which had abandoned the area. Verified this fact, an investment was done in colonizing the river with baby fishes to improve the population.
CONCLUSION

CETEM’s ROLE

Dr. Villas Bôas’ directive:

COMMITMENT TO ENVIRONMENT and SUSTAINABLE DEVELOPMENT

amalgam destiller

method for mercury dosage in blood cleaning of Santa Catarina’s coal areas use of mercury in artisanal mining etc.
Francisco Mariano da Rocha Lima’s Celso Ferraz 2013 prize
enormous potential for mineral resources conservation +

important tool to reduce the environmental impact of urban renewal process that most of our cities are facing

= URBAN MINING CONCEPT
Thanks!

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