



Can ecological charges be a solution for the environmental liabilities?

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Introduction

- The environment in the countries of Central and Eastern Europe (CEEC) was in a very poor state, and the enlargement of the European Union posed an environmental challenge on a far greater scale than on previous accessions.
 - The applicant countries were expected to transpose all existing Community environmental law into their national legislation, and this is taking considerable effort.
 - The new laws influence the operation and behaviour of companies, but also impact on their competitiveness, particularly in the mining sector.
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EU legal regulation (1)

- The European Directive on Pollution Prevention 96/61/EC of 24th September 1996 (IPPC): „Integrated Pollution Prevention and Control (IPPC)”.
 - The IPPC Directive is about minimising pollution from various point sources throughout the European Union. All existing zinc and lead installations in new EU members are required to obtain a permit from the authorities and without this permit, they are not allowed to operate.
 - Deadline in Poland – 30.04.2007.
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EU legal regulation (2)

- EU Directive on the Management of the Waste from Extractive Industries, was officially published on June 2, 2003, but still remains under discussion.
 - The Directive merely creates ‘a level playing field’ in the areas of extractive waste, by specifying requirements on the design, operation, closure and most importantly post closure inspection of waste management facilities.
 - All legal regulations influence the competitiveness of mining companies, especially in new EU 10.
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EU legal regulation (3)

- EU communication (COM (2003) 572) entitled „***Towards a Thematic Strategy on the Sustainable Use of Natural Resources***”.
 - This is the first step in the development of European Resource Strategy. The main objective of the Strategy is to achieve in the long-term (25 years) the necessary decoupling of resource-related environmental impact from economic growth.
 - The studies conducted in this area should take into account the entire life cycle of the product.
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Cost Internalisation

The introduction of environmental charges increase production costs and negatively influence on competitiveness. Therefore, to apply cost internalisation, the level of any charges (i.e. taxes and fees) for any pollutant should be uniform within the EU.

In theory, to express the pollutant harmfulness in monetary terms, many approaches can be used but two main forms can be distinguished:

- Based on the effects-oriented policy: the damage is expressed in monetary terms,
 - Related to the source-oriented policy: costs required to prevent the effect are expressed in monetary terms.
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Cost Internalisation

	Taxes	Fees/charges
Austria	Waste deposit levy	batteries; municipal waste collection/treatment; packaging
Belgium	Écotaxes	waste dumping and burning
Denmark	Duties on: paper bags, plastics, etc.; certain retail containers; disposable tableware; electric bulbs and electric fuses; sealed Ni-Cd batteries; tyres; waste	batteries; hazardous waste; municipal waste collection / treatment
Finland	Oil damage levy; oil waste levy; Tax on waste	hazardous waste; municipal waste collection / treatment; nuclear waste; tyres
France	General tax for pollutants	municipal waste collection / treatment; waste disposal
Germany		dangerous waste
Greece	Charge on: municipal waste collection / treatment; waste disposal	
Italy	Consumption tax on lubricant oil; Tax on: waste disposal; plastic bags	batteries; lubricant oil; municipal waste collection / treatment; packaging
Holland	Minerals accounting system; Waste tax	Municipal Waste Charge
Sweden	Charge on nuclear waste; Tax on waste	municipal waste collection/ treatment; scrapped cars; batteries
UK	Landfill tax	

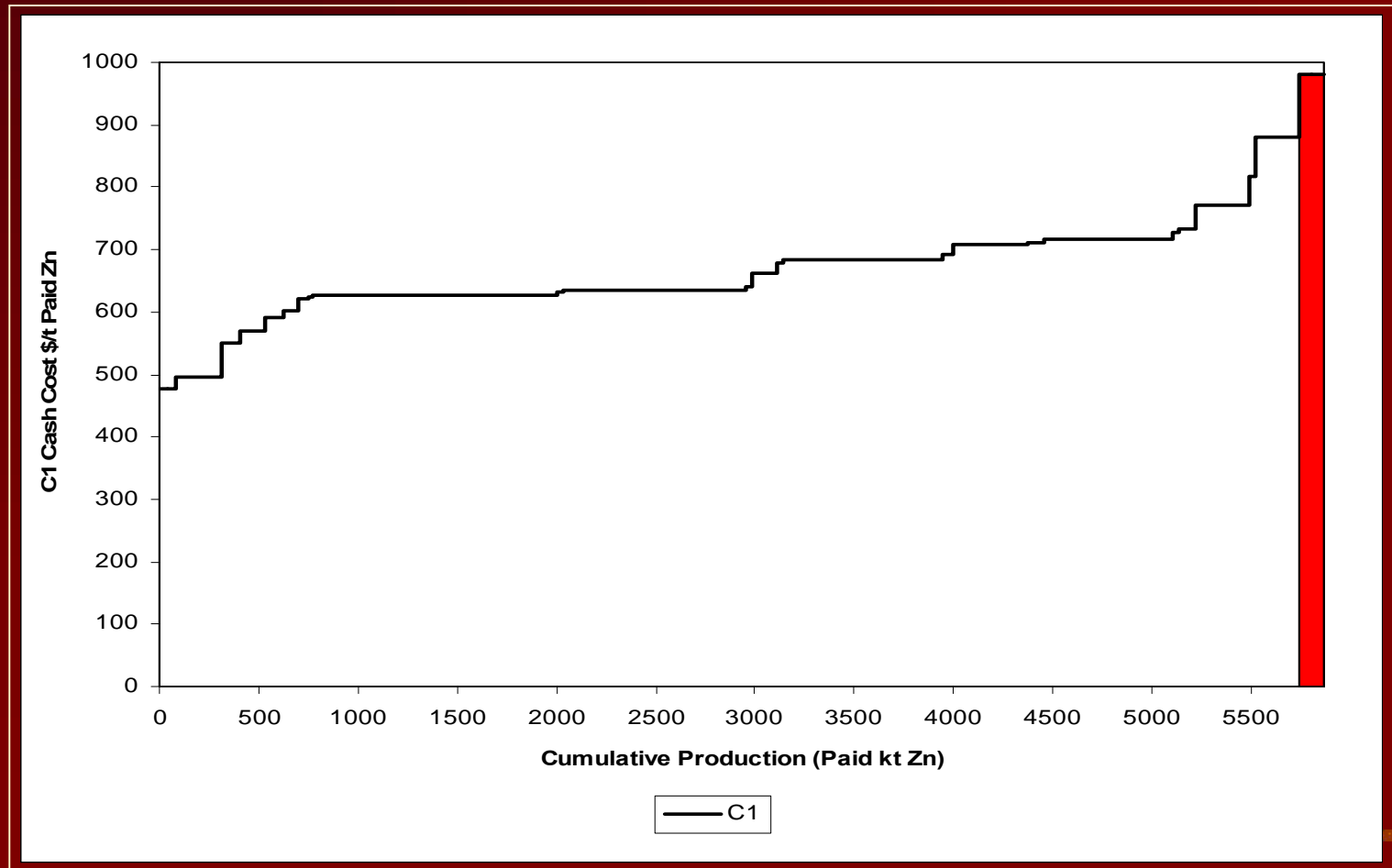
Waste charges in Poland

Environmental charges for waste storage have to be paid even if company storage tailings on its own dumps. According to Polish environmental legislation every tonne of tailings placed in the tailings pond is levied with the charge, e.g. for 1t of tailings – according to the latest Ordinance of the Cabinet from Oct 2003:

- for 1t of mining waste from metallic ores extraction – 14.75 PLN (~3.40 EUR),
 - for 1t of other mining waste – 9.51 PLN (~2.20 EUR),
 - for 1t of other tailings containing hazardous substances – 47.35 PLN (~10.80 EUR).
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Zinc production cost curve (composite costing)

by country, highlighting the position of Polish production (2002)



Costs of waste management

Metal(s)	Mine	EUR/t of ore	EUR/t metal
Zinc, mostly with lead	1	-	18.3
	2	-	8.4
	3	-	5.7
	4	-	76.5
	5	-	44.3
Zinc, copper, some gold	6	-	14.0
	7	-	41.2
Weighted average* (1-7)		2.0	26.2
Weighted average (excl. mine 4)		1.1	14.8

* weighted by respective tonnages

Source: A Study on the Cost of Improving the Management of Mining Waste, Symonds Group, 2001.

Costs of waste management

- For ZGH Bolesław the operating cost of waste management amounts to about 600 000 EUR per year (60% - labour, taxes and consumables; 40% pumping and energy).
 - Cost of the environmental fee paid over last two years (2002 and 2003) amounted only to 90 000 EUR.
 - In 2004 a special charge of 150 000 EUR for solid waste storage has to be paid.
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Costs of waste management

General review		Rio Narcea	
Sub-operation	cost	Sub-operation	cost
Pumping to pond	0.1		
Dam raises	0.4	Dam raises	0.5
Tailings distribution	0.05-0.3		
Tailings pumping and maint.	0.1		
Tailings dewatering	1.0-4.0	CN destruction	1.0
Dust suppression	>0.1		
Water treatment with lime	0.1		
Monitoring	0.1		
Truck transport to mine/dump	0.5-1.0	Others (energy, pipes, maint.)	0.5
Total operating cost	2.4-6.6	Total operating cost	2.0

Costs of waste management

KGHM		Zinkgruvan	
Sub-operation	cost	Sub-operation	cost
Pumping to pond	0.530	Tailings pumping	0.11
Dam construction	0.060	Piers	0.07
Pumping water back to the processing plant	0.333	Pumping water back to processing plant	0.04
Pumping excess water to the river	0.046	Pipe wear	0.16
Ecological fee for tailings disposal	0.470		
Ecological fees for discharged water	0.097		
Dust spraying with asphalt emulsion	0.031		
Purification of discharged water	0.031		
Hydrotechnical monitoring	0.002	Dam safety monitoring	0.05
Safety supervision and control procedures (geotechnical monitoring)	0.014		
Air, water, soil and seismic monitoring	0.020		
Emergency alarm system	0.0004	Others	0.38
Total operating cost	1.634	Total operating cost	0.80

Costs of waste management

Company / mine	Total Operating Cost (EUR/t)
Boliden	0.80
Zinkgruvan	0.80
Rio Narcea	2.00
Kemi	0.60
Orivesi	0.40
Pyhasalmi	0.48
Hitura	0.30
Garpenberg	0.40
KGHM (Legnica-Glogow copper basin)	1.63
<i>General review</i>	2.45-6.60
<i>Average Total Operating Cost (excl. general review)</i>	0.93

Costs of waste management

The differences between cost level achieved in every single mine or company comes from several reasons:

- calculations are based on different methodological approach;
- wide range of unique technical and technological aspects (type of mineral, quality and size of deposit, age / period of exploitation, methods of extraction / processing / disposal, machinery, and many more);
- a valid regulatory system in a specific country.

Regardless these limitations, as determinants most influencing cost level tailings dewatering and pumping, dam raising, transport, and ecological fees (mainly Poland) can be indicated.

Conclusions (1)

- Although ore mining in the new EU member countries has got a very old tradition, most of ore mines have already been closed.
 - Consequently there is a considerable mining legacy left in the new EU member states, including heaps, waste dumps and sumps.
 - The accession of new members into the European Union will require them to comply with environmental protection standards.
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Conclusions (2)

- The additional requirements for dealing with environmental issues will increase minesite costs across the EU.
 - These additional costs are not required from their global competitors and will place even more pressure on European producers.
 - In the case of mines in the new EU member states additional capital investments may have to be made to bring existing facilities into line with best practice, placing additional financial stress on these operations.
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Conclusions (3)

- Comparison and calculation of the environmental costs in Europe requires clear accountability and an accepted measurement methodology (cost internalisation).
 - To identify all environmental costs and to develop a transparent methodology, the cost calculation needs to take full account of Life Cycle Assessment analysis for an individual company.
 - The cost of environmental compliance in a world where there is not uniform legislation and a level playing field poses a challenge to European producers.
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Conclusions (4)

European mining producers can maintain the high standard of waste management through existing system of permissions (IPPC), including BAT, but it can be achieved without imposing additional duties, as it was done in Poland.

Introduced system of fees and charges in waste management is successful for many items (e.g., municipal waste, emissions of hazardous pollutant to air and water) its implementation into mining activity will not bring advisable results, but surely decrease competitiveness of EU producers.

Minerals are worldwide tradable (own regulations, international prices, mostly listed on stock exchange) and cannot be treated the same way.
