

Panel on Exergy ,Ecology and Economics



- ECOS'06
- July, 13, 2006
- Antonio Valero

Panel on Exergy ,Ecology and Economics

- Which is the cost of 10 g of aluminium?
- Few cents of euro?
- Or... ■
- Several MJ?

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- Which is the cost of an aluminium can?
- 1 or 2 cents of euro?
- Or... ■
- Several MJ?

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- Which is the cost of a blank sheet of paper?
- Few cents of euro?
- Or... ■
- Several kJ?

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- Which is the cost of this paper sketched by a Picasso´s drawing?
- Few hundreds of euro?
-
- Or...
- Several kJ?

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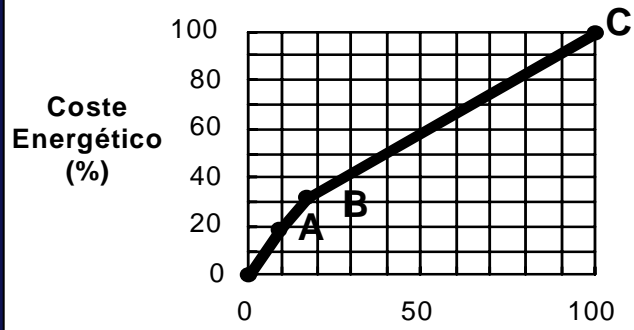
- We see that any product can be measured both with monetary costs and exergy costs.
- But note that in the idea of monetary cost we implicitly are saying “market” cost.
■
- This means that we are considering that we pay to all people that have been played a role in its production process. From the mine to the last seller.

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- The problem with the physical costs is that it depends on the physical limits of the analyzed system.
- But it contains an information that is measured within the International System of Units and not subjected to the vagaries of economics. Perhaps an extraterrestrial intelligence would quickly understand the physical cost concept. I am not sure about the monetary cost.

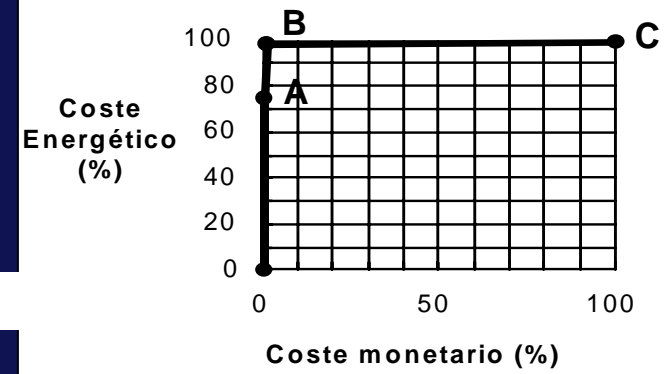
I. PAN DE MOLDE

a) Producción de pan



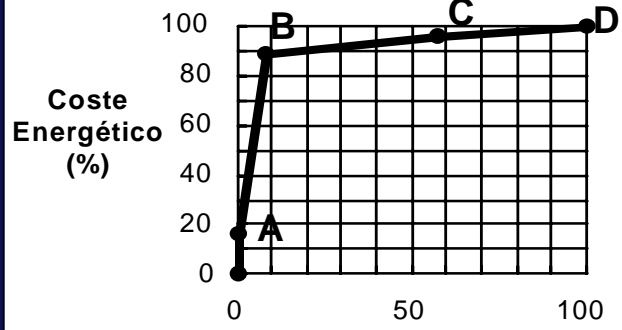
II. HOJA DE PAPEL

b) Producción de papel impreso



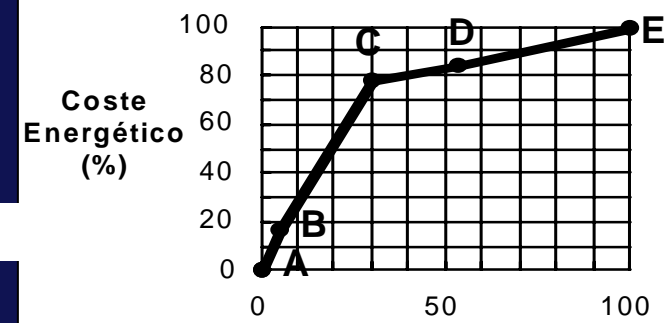
III. VASO DE VIDRIO

c) Producción de vidrio



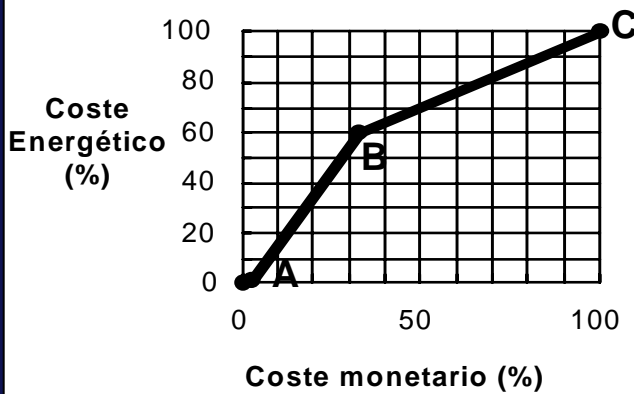
IV. LATA DE ALUMINIO

d) Producción de aluminio



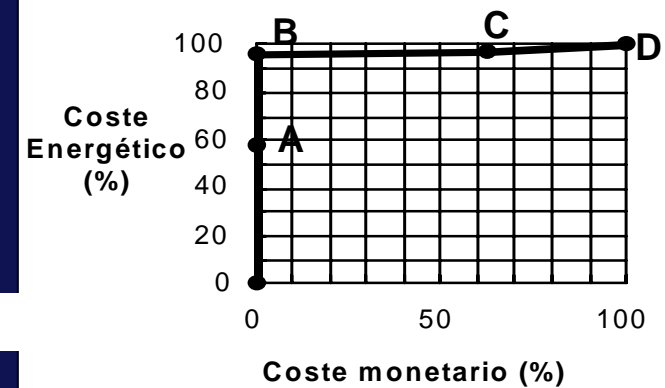
V. BOT. DE PLASTICO

e) Producción de plástico



VI. ALICATE DE ACERO

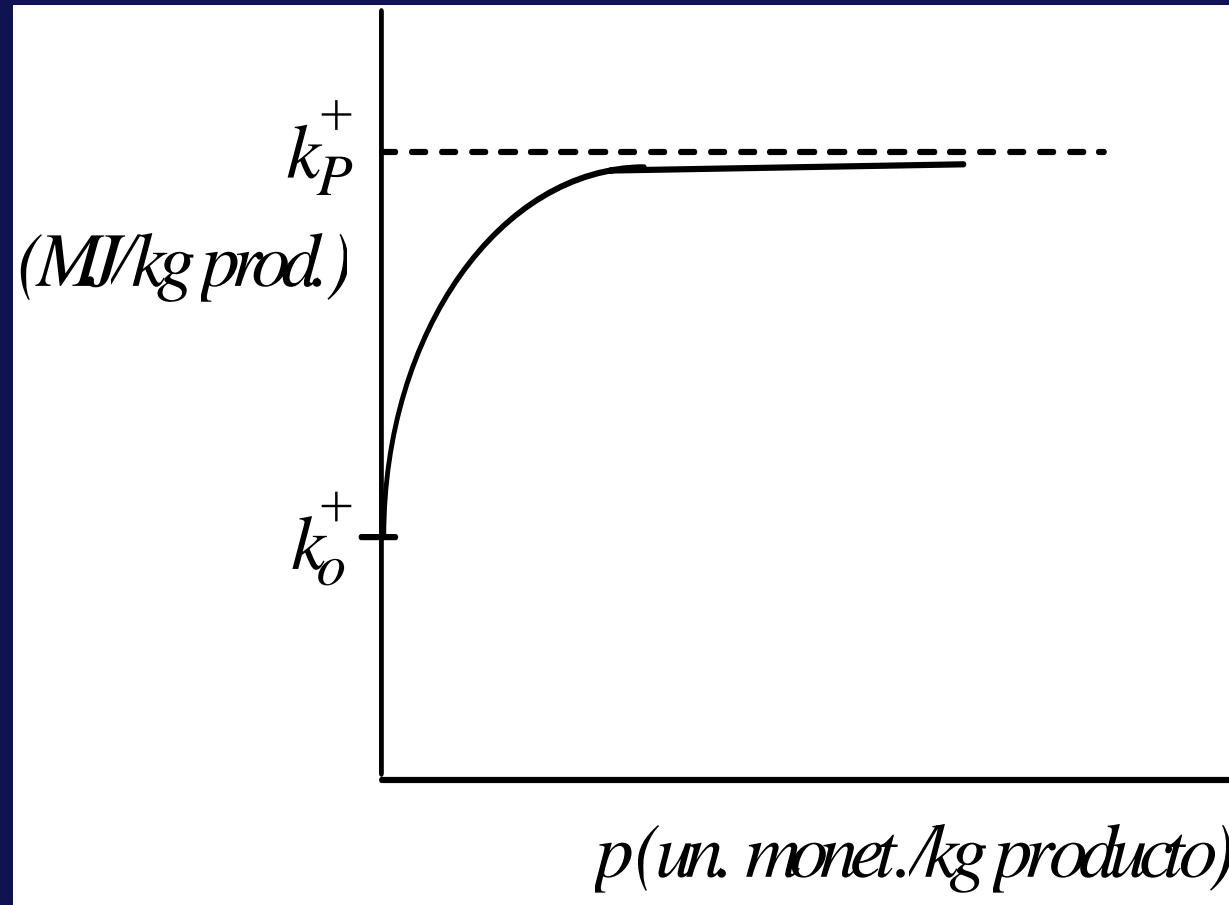
f) Producción herramienta de acero



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- The “Notary Rule”
- When building a house, bricks, concrete, glass and irons have the largest energy expenditure per unit of invested euro. On the contrary, once the house is finished the Notary does the less physical effort per euro.

GRAPHIC REPRESENTATION OF THE “NOTARY RULE”



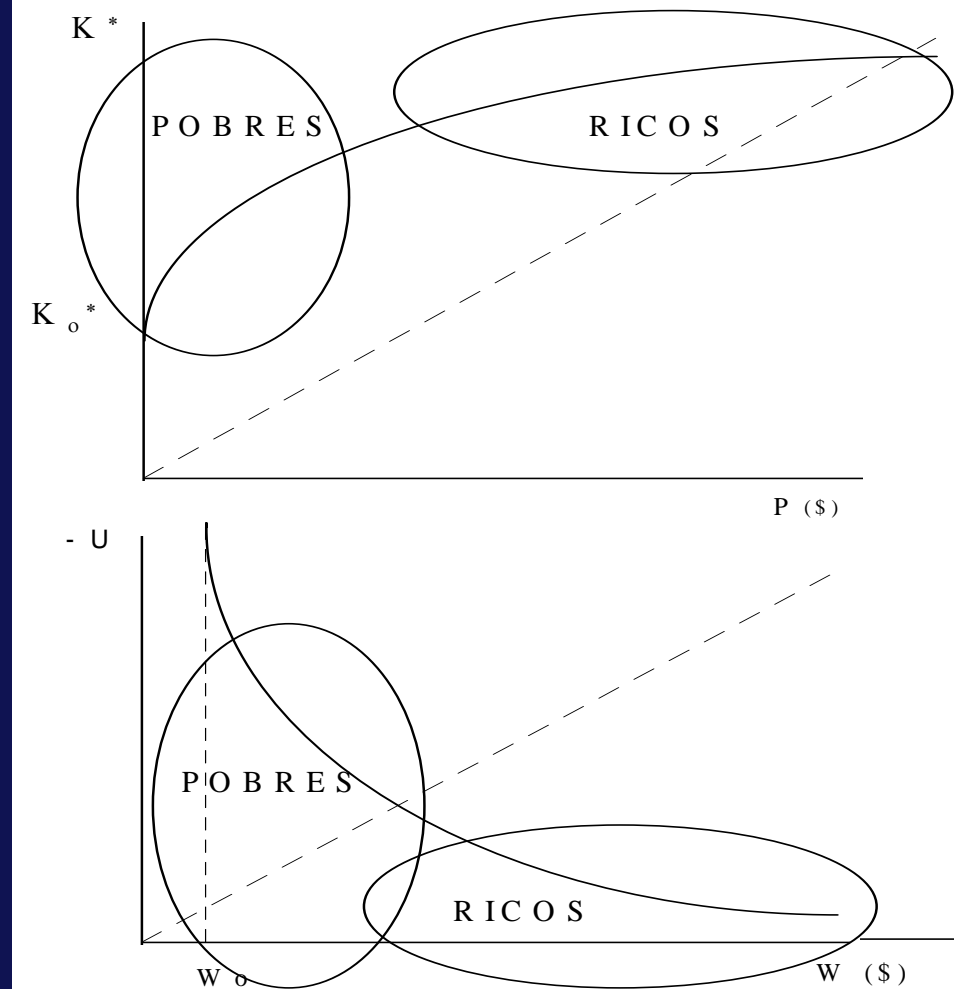
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- Apparently, this is a “law of life”
- Energy and natural resources value almost nothing , and we only pay for them the cost(the man´s effort) of extraction and some opportunity cost associated to relative market availability.
- Who pays Nature? What is the cost Nature has for producing natural resources? Who replaces the services Nature provides for free? Which is the cost with our best technology alternative to produce air, the ice sheets, the minerals, fresh water or the fossil fuels?

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- Apparently, this is a “law of life”
- Not only Nature against Man, but...
 -
- Poor Countries against rich Countries!

Gráfico 23.3



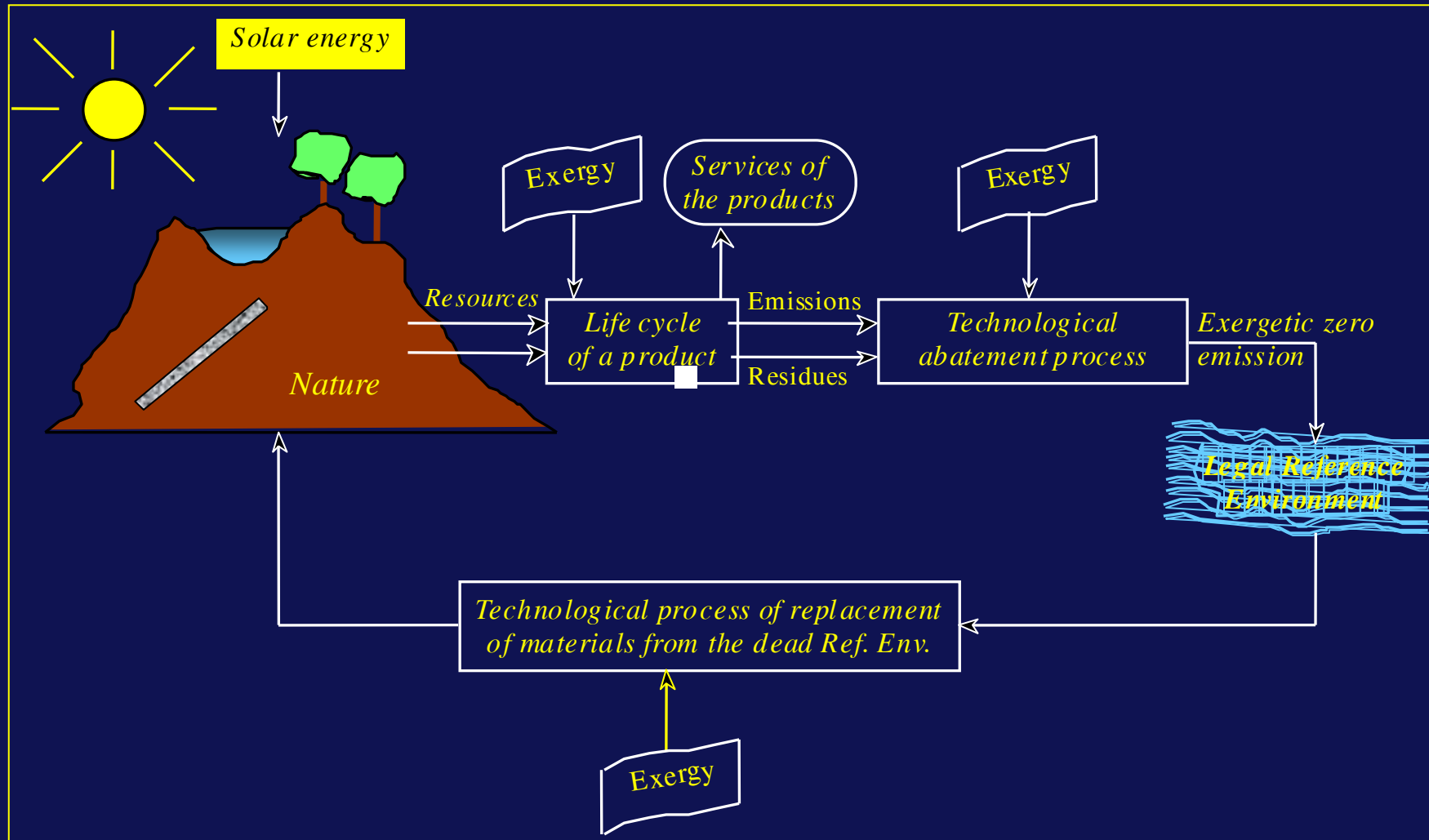
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- Apparently, this is a “law of life”...?
- The environmental problem cannot be solved without modifying the the rules of market that govern the evolution of commerce and the financing sector.
- We must reformulate from the very roots all criteria to value goods that now we take for granted...and we don't know how to replace them once destroyed.
- We must develop a global energy accounting that consider the replacement costs of Natural resources.
- It is urgent to make as symmetrical as posible the “Notary Rule” wherever it appears. It is an injustice to give no value to natural resources except for our own effort of extraction
- Assessing the Natural Patrimony of countries and providing it in physical figures rather than in economic ones.

PERSPECTIVES

- This is the object of Exergoecology, and
- I Encourage young researchers to start a world joint project of assessing from Second Law the Natural Capital on Earth, countries and regions, and convince Governments and Political deciders the importance to have these accounts.

A new way of thinking: Exergoecology



INTRODUCTION

- The great economic growth experienced throughout the 20th century by many countries is mainly supported by the increasing extraction of natural resources, favored by technological innovation.
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- However, the concern about resources scarcity has also raised.
- If resources are limited, their management must be carefully planned in order to be consistent with the sustainability doctrine. And information is the key factor for transformation to sustainability!
- Hence, the true intertemporal scarcity of environmental goods must be analyzed and appropriate indicators for the scarcity of these goods must be found