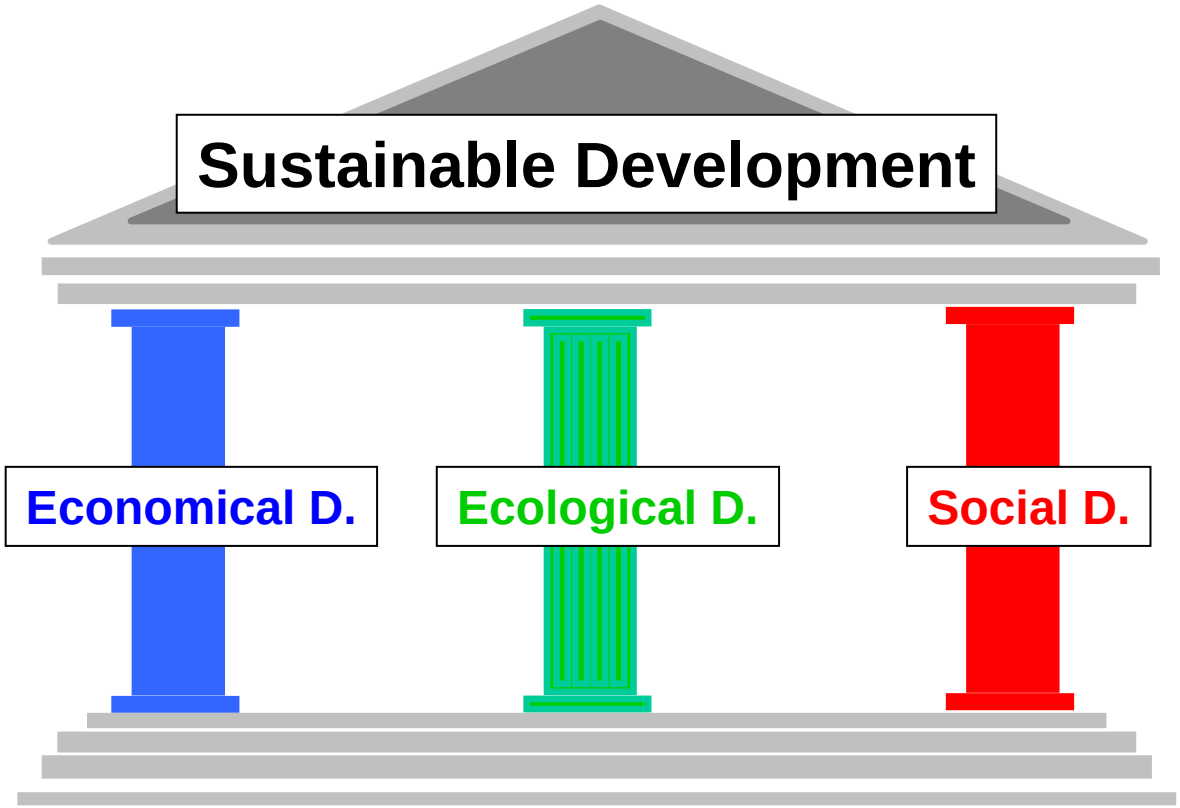
“Carbon neutral Products,

a sustainable marketing idea!”

(Quantifying Sustainable Development)

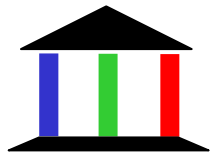
1. “Three Pillar Model”/”Triple Bottom Line” of Sustainable Development (SD)
2. What is a “Carbon neutral Product (CnP)”?
3. More on “Carbon neutral Products (CnP)
4. How can climate-/carbon-neutral products help us (society, industry, ….)
5. Summary

1. “Three Pillar Model” of Sustainable Development (SD)



Three pillars support SD!

1. “Three Pillar Model” of Sustainable Development (SD)



Three pillars support SD!

The role of ecological and social development is clear to all!

The economical development is clear, at least it’s role to support ecological and social development!

Which pillar is used to attack PVC? The ecological pillar!

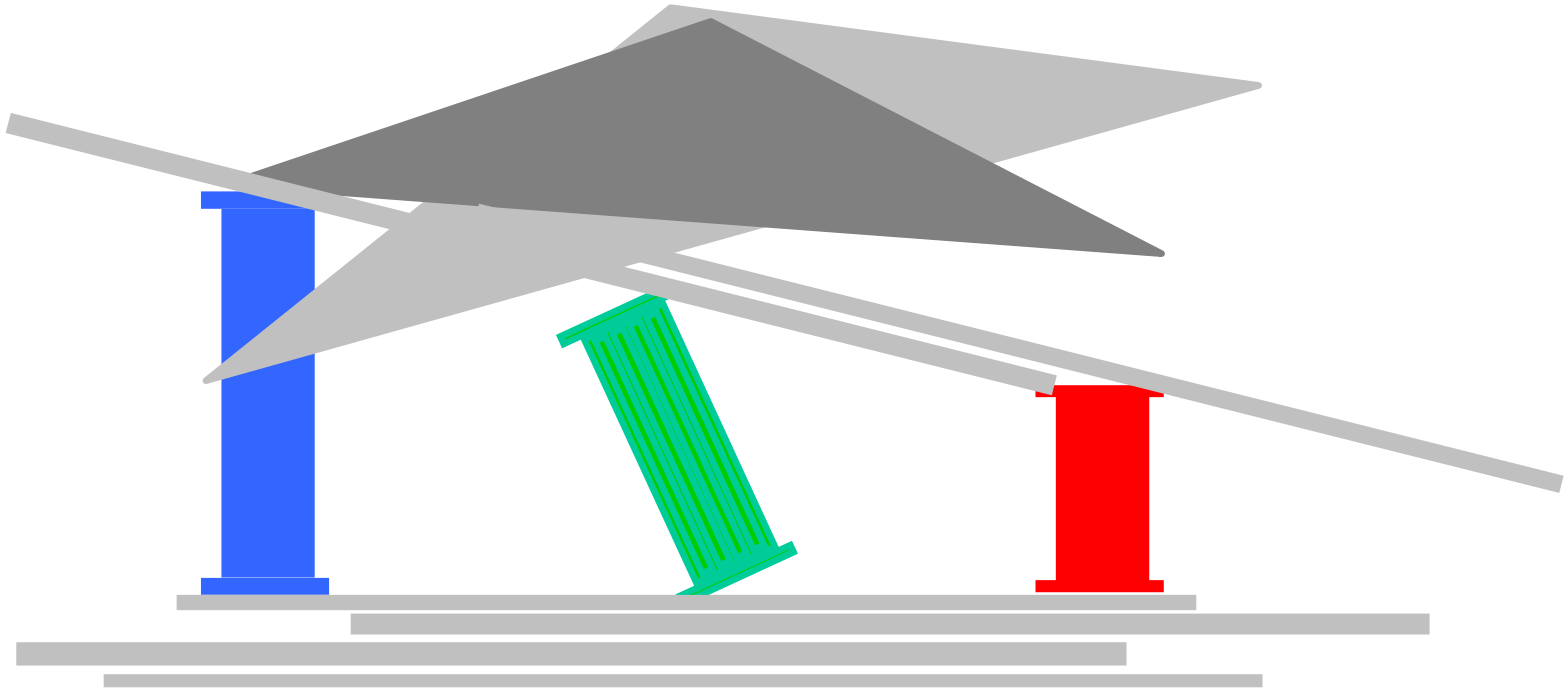
Most of our work is ecological, and we have many good arguments, risk assessments, …; do we know of each others work? Do we use it?

In which pillar PVC is strongest? The economical pillar!

We can show that economic advantage is more than “low cost”!
We can use little money for huge ecological/social optimisation!
Lets do it, let others know about it!

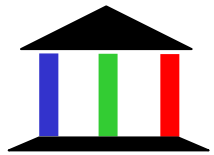
1. “Three Pillar Model” of Sustainable Development (SD)

“Implicit fourth pillar”: Technical, functional sustainability



Technical, functional sustainability implicitly taken as ok.!

1. Links between the “three pillars”



The three pillars are highly interconnected (makes evaluation possible!):
Example “low life cycle cost”:

- **Low cost products are economically more sustainable, since economical resources are scarce!**
- **They are also socially more sustainable, since they are better affordable than more expensive ones!**
- **They have a very high social and ecological optimisation potential, since using them saves money to society. This can be used for social and ecological optimisation** (quantitatively more at other parts of this information)

Realising the ecological optimisation potential of money (“low LCC-products”)

1. **Using it to finance “climate gas” saving**
2. **Using a little part of the cost of products to realise “Climate/Carbon neutral product”**

2. What is a “Carbon neutral Product (CnP)”?

What is a „Carbon neutral Flight“?

Some organisations sell „ticket upgrades“ and use this money to save CO2-emissions in the same amount as were emitted by the flight (e.g. www.myclimate.org) „only not to fly is better!“

e.g. cost for Munich – Boston: ca. 40 $

Example: Comparison of a „normal“ or a „carbon neutral PVC-window“

A „normal“ PVC-window“

= PVC-window (as up to now) →

Production etc.
emits ca. 135 kg CO_2

A „carbon neutral PVC-window“

Production etc.
emits ca.
135 kg CO_2

= PVC-window (as up to now)
+ e.g. solar power plant
A small part is enough!

Solar power
saves CO_2

Both together = 0 kg CO_2
= „Carbon neutral PVC-window“!

Vinnolit Optimisation Method: (PVC windows, quantitative)

The whole cost advantage is used for carbon-saving!

	Product A PVC window normal	Product A‘ + 11 t CO2 savings	alternatives wood-Al	alternatives wood window
Energy demand (GJ)	- 2 340	(+188 000)	- 2 880	- 1 360
Greenhouse (t CO_2)	- 135	+ 10 800	- 128	- 85
Cost (Euro) *)	- 300	- 464	- 464	- 550 (636)

CO2 avoiding cost: Ca. 15 €/t CO2, cost of CO2 saving activities.

(with 464 – 300 =) 164 € one can avoid 11 000 kg CO2

(and some 190 GJ primary energy)

Vinnolit Optimisation Method: (PVC windows, quantitative)

Only the amount of money is used to compensate totally the climate effect

	Product A PVC window normal	Product A' + 135 kg CO2 savings	Product B wood-Al	wood window
Energy demand (GJ)	- 2 340	(+- 0)	- 2 880	- 1 360
Greenhouse (t CO_2)	- 135	+- 0	- 128	- 85
Cost (Euro) *)	- 300	- 302	- 464	- 550 (636)

CO2 avoiding cost (ca. 15 €/t CO2, emission certificates)?

(with 0.135 * 15 =) 2 € one can avoid 135 kg CO2

= "Climate neutral PVC window"

“Carbon neutral Products”:

Cost to save CO2: Some 15 €/t CO2 (e.g. financing higher cost of a solar power plant compared with a Diesel fuelled power plant)

Products calculated:

- **PVC pipes, flooring, roofing, packaging foils**
- **Computers incl. some year of use time (electricity consumption)**
- **Cars incl. 150 000 km driving, washing, repairs etc.**
- **Result: 0.5 – 1% of the LCC is enough to compensate climate ….**

Other impacts compensated:

- **Not only Carbon = Greenhouse effect, but also demand of energy (incl. non renewables), other emissions resulting from incineration (CO, NOx, SOx, carcinogens like PAH, Hg, …), risks from transporting oil, gas, …**

“Carbon neutral Products”:

Only some 0.5 – 1% more expensive, but ecologically “miles ahead”!

Economy is 100 – 200 times more important than „Climate effect or energy demand“ (incl. non renewables)!

„CnP, a big step towards sustainable consumption!“

„CnP integrate the external cost of greenhouse gases and energy demand!“

Some important points

Not only for PVC products, or for plastic products, for all products!

Low cost products will stay “low cost CnP”!

There are other “value systems”:

“Justice”: “All cars should emit less 130 g CO2/km!”

←→ a big CnCar has the same climate impact than a small CnCar

4. How can “Carbon neutral Products (CnP)”help us?

Background:

1. **Plastic/PVC products score quite well in energy demand and CO2!**
   (Substitution of plastic products by alternatives would lead to much higher energy demand and climate effect)
2. **CnP for all products! (**They are a very efficient method to improve towards SD! “Towards sustainable consumption with CnP!”)

CnP from “oil” are in general economically better than alternatives from “wood”.
CnP much better (“zero”) than alternatives in climate effect, energy demand!

Green activities must treat CnP plastic products better than normal “wood” alternatives!

Eco labels, Green Public Procurement etc. must favour CnP!

With low cost products from “oil” one can save much better climate effect, “oil” etc. than with alternatives on basis of “wood”.

4. How can “Carbon neutral Products (CnP)”help us?

LEED points:

US GBC (U.S. Green Building Council) said, that projects can now earn an “innovation in Design” point by using building products and materials that have been certified “Carbon neutral” by a reputable, independent third-party certifier. The product’s entire line of supply and manufacture must also be climate neutral.

Flooring industry in USA specially active in informing on LEED points (Armstrong, ..)

4. How can “Carbon neutral Products (CnP)”help us?

San Francisco against plastic bags

Why? Saving of CO2? Oil?

1. **Paper bags are not better in CO2 emissions or oil demand!**

2. **Why not offer “Carbon neutral plastic bags”?**

180 Mio bags/year = ca. 20 000 t bags (10 g/bag) = ca. 40 000 t CO2 (LCA)

Compensation of these 40 000 t CO2 cost ca. 600 000 $ (15 $/t CO2)

This is 0.3 Cent/bag. Is this much? Are paper bags less or more expensive? Are “carbon neutral paper bags” less or more expensive?

5. Summary

"Three pillar model" or "Triple bottom line" accepted by all (policy, industry, NGOs)!

Measuring the ecological pillar is well developed! All speak about it!
PVC scores quite well! Continues to improve! Etc….
But: "Greenpeace" will always find points difficult to prove! (landfill fires,…)

Measuring the social pillar is less well developed!
PVC scores quite well in wages and very well in accident numbers!
Acceptance (private – public)!

Measuring the economical pillar is quite well developed! Few speak about it!
PVC scores excellent (low LCC)!

economic advantages can help to finance ecological and social development!

economic advantages makes compensation an excellent choice!
"Climate neutral Products!"

It is clear, that CnP is not the only task for us, recycling has to be improved, risk topics worked out!

Risk topics

Dioxins (production of PVC, unmeasurabel in PVC, fires (landfill, "thermal recycling in 3rd world"), ...

Additives, ….., influence on indoor air, childrens uptake of dust, ….

Risks from too expensive products (poor people, ..)

Joint task:
Jointly complete such a list, evaluate the arguments, locate risk topics with missing Arguments, decide if review is necessary!

5. Summary

Why should we support CnP?

They are good for SD!

They are good for environmental (social) progress!

They are good for our industry!

They are forward directed!

“Carbon neutral products!”:

Use in GPP, against discrimination of plastics, PVC, for more sustainable consumption, ...

We have to make use of these economic advantages!

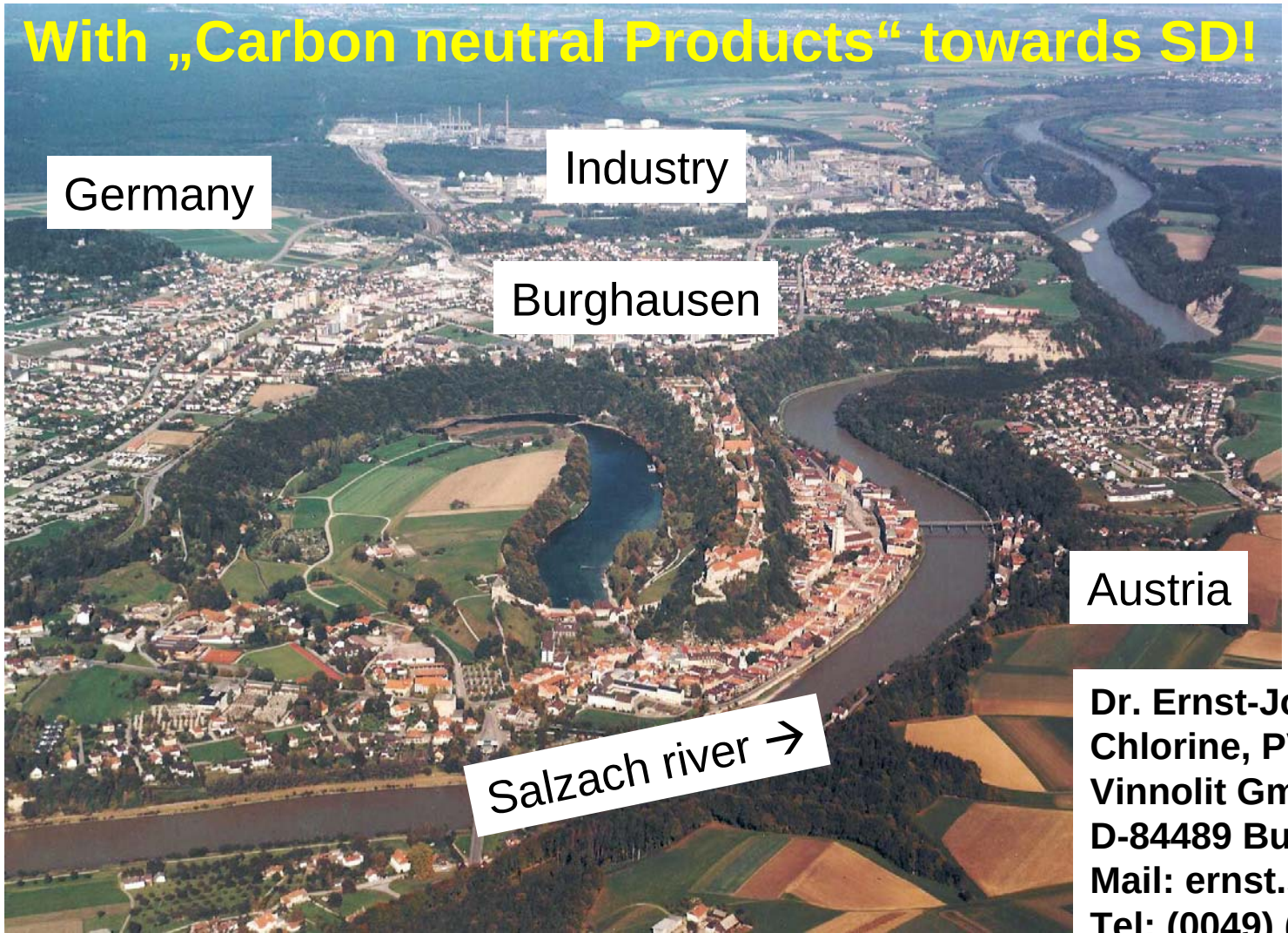
They are real!

They are “now”!

SD = efficiency + sufficiency + compensation

Vinnolit
Leadership in PVC

With „Carbon neutral Products“ towards SD!



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