



Safer Substitution

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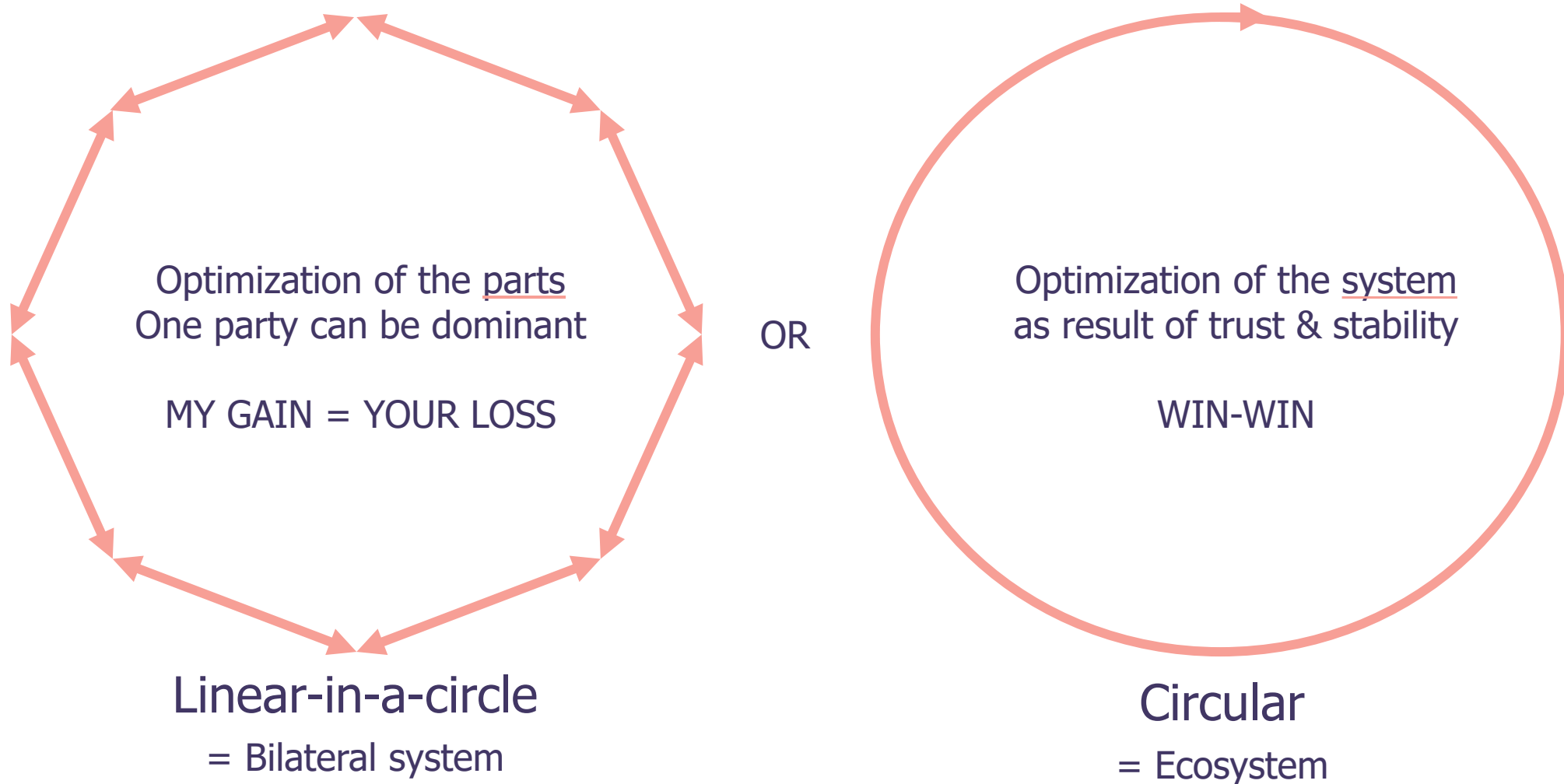


DRIVING THE TRANSITION

Starting from safe use of chemicals,
Apeiron guides its clients to
sustainable, future proof business operations.



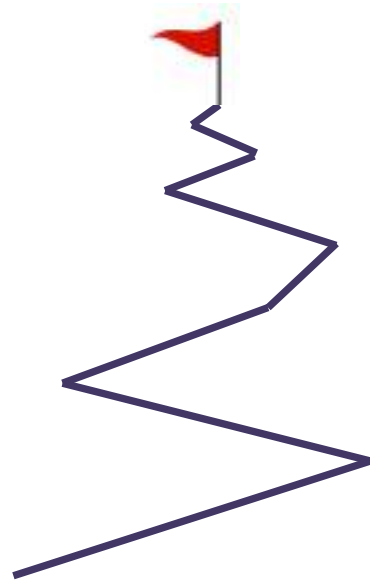
Stepping up from “LINEAR-IN-A-CIRCLE” to “CIRCULAR”





EU Green Deal

CHALLENGES
large & versatile



RESOURCES
are not infinite



REACH Authorisation & Restriction drive substitution

But was it always for the better?

in the bigger picture of the Green Deal

Or can we improve?



Chromium(VI)

Real life example: sum of 3 Cr(VI) authorisations

Investment (NPV)
ca. **161.500.000€**



€ HH during review period
= ca. **225.000€**



0,0056

total fatal cancers cases per year



Is this
161 mio€ from the applicants,
money well spent for SOCIETY?



What if...ALTERNATIVE-ly?

... we make the desert green again?

Project by Lignaverda <https://lignaverda.org/en/>





2010



2012



2017

Project by Lignaverda

161 mio€ Investment

Hectare trees	317.300	
Ton CO ₂ /yr	1.073.500	= 107.350 Belgians (CO ₂ emission)
Cash crops/yr	5.288.333€	Gum, balanites oil
Grass/yr	3.807.600€	
Direct employment	380.000	= 1.331 villages
Indirect employment	380.000	



161 mio€ Investment

Investment (NPV)
ca. **161.500.000€**



471.000.000€ *

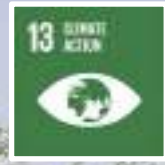


*NPV (4%) 20yrs
incl. cash crop, grass, CO₂ capture
HH cost of Cr(VI) use deducted



INDIRECT IMPACTS

PLANET



PEOPLE



PROSPERITY



PARTNERSHIPS

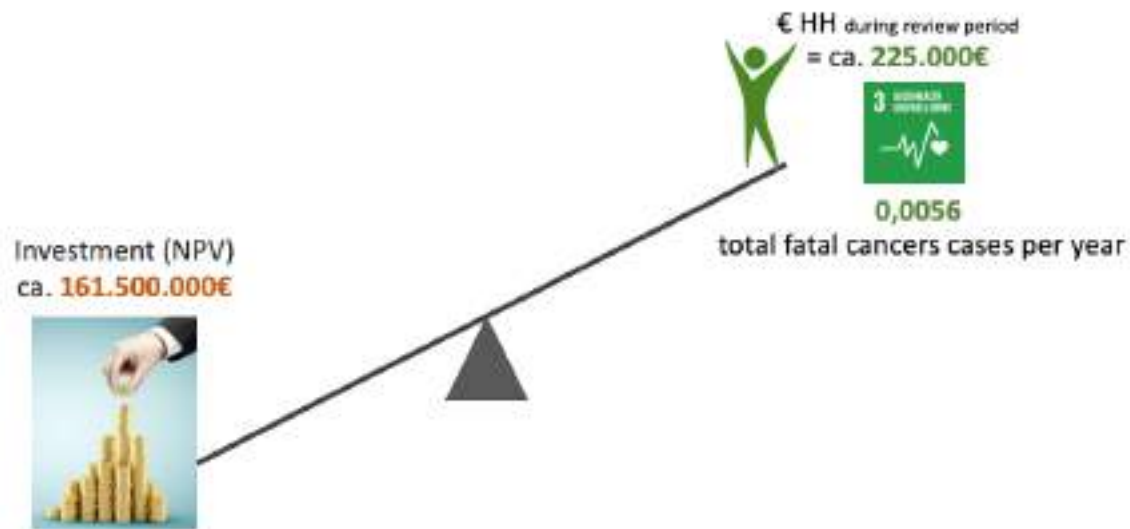


PEACE (STOP MIGRATION)

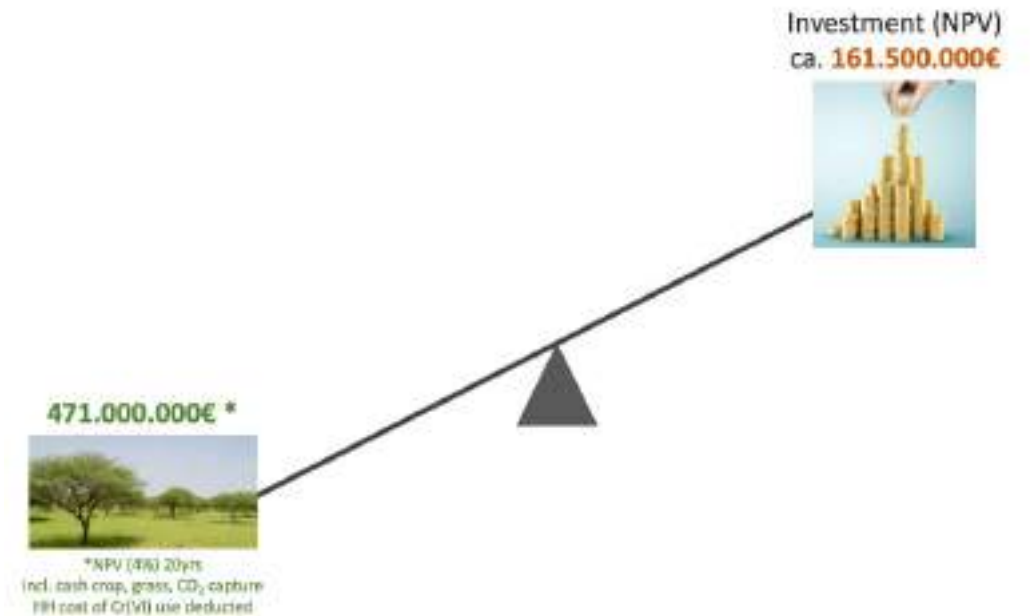


Alternatives Assessment of Investment

Alternative A: Substitute SVHC



Alternative B: Make dessert green



Diglyme substitution

real life example



Use of diglyme as a solvent for the synthesis of the anti-HIV API



Diglyme substitution

Investment
for substitution
2-5 million€



€ HH during review period
= ~~0€~~
0,0



Cases of male infertility
Adequate control of the use

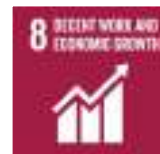


2-5 million € Investment

Investment
for substitution
2-5 million€

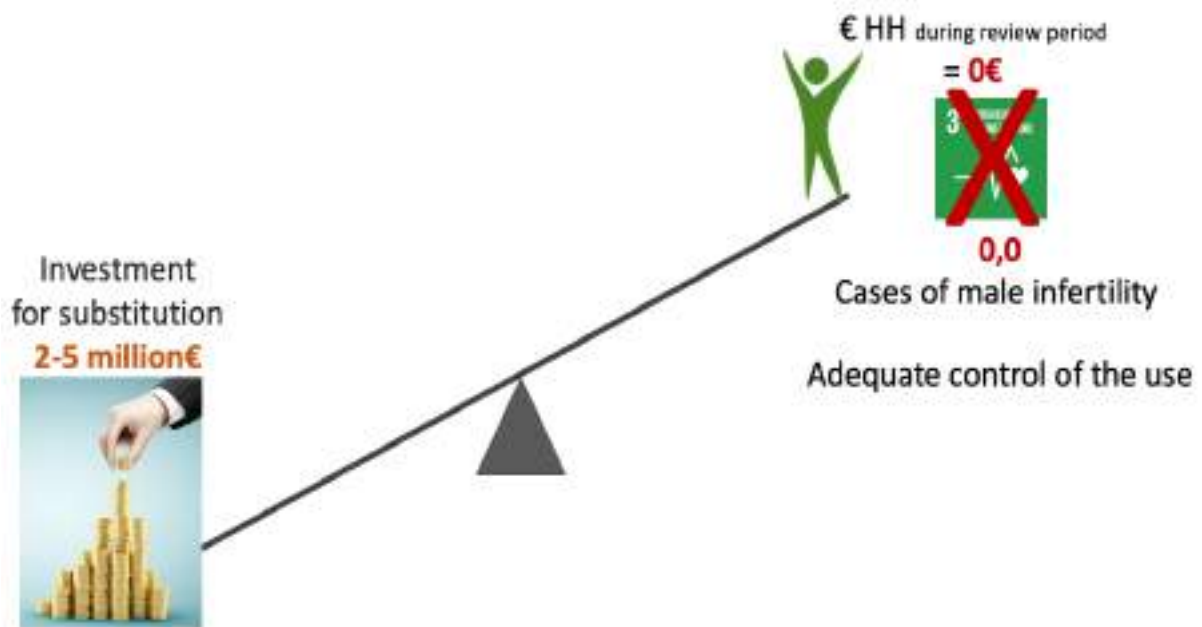


More vaginal rings
= 300-750 women
without HIV



Analysis of Alternatives of Investment

Alternative A: Substitute SVHC



Alternative B: Safe Women in Africa

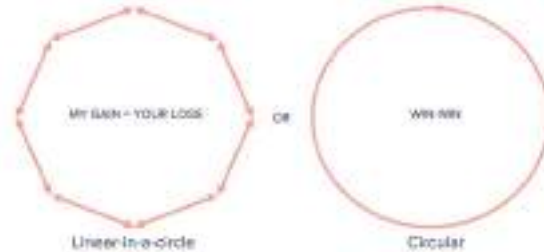


Was it always for the better?

Regrettable substitutions in terms of
overall risk (Cr(III) still leads to Cr(VI) exposure higher up in supply chain),
societal benefits & waste of resources



Safer Substitution



Holistic Approach

Comparative Risk Assessment

- Hazard & Risk
- Climate
- Circularity (not just recyclability!)
- Resource depletion

over the **life cycle** of substance & product

Using resources smartly

= SUBSTITUTION PRIORITY SETTING

First S(VH)C with **maximum positive impact for society**

The rest later

Improved Authorisation Process

- Implement very low risk model → CSR first, then decide on need for AoA & SEA or compensation mechanism
- No exemptions (intermediates, manufacturer, ...)
- Involve the user of the S(VH)Cs!
 - Every user (or group), M/I makes authorisation CSR, incl. measurements → it's a burden, but leads to safer use!
 - With information duty to the workers on yearly measurements
 - ECHA to extend its hazard database with monitoring data → important information for substitution priority setting
- If CSR demonstrates very low risk, then compensation to offset "remaining harm"
= Clean Development Mechanism for S(VH)Cs
- **Stop export of our EU's risk!** (e.g. chrome plating, solvents)
 - Import tax for articles made with S(VH)C but no longer containing it



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