

# LUXEMBOURG AS A KNOWLEDGE CAPITAL AND TESTING GROUND FOR THE CIRCULAR ECONOMY



**Christian Tock**

Directorate New Technologies

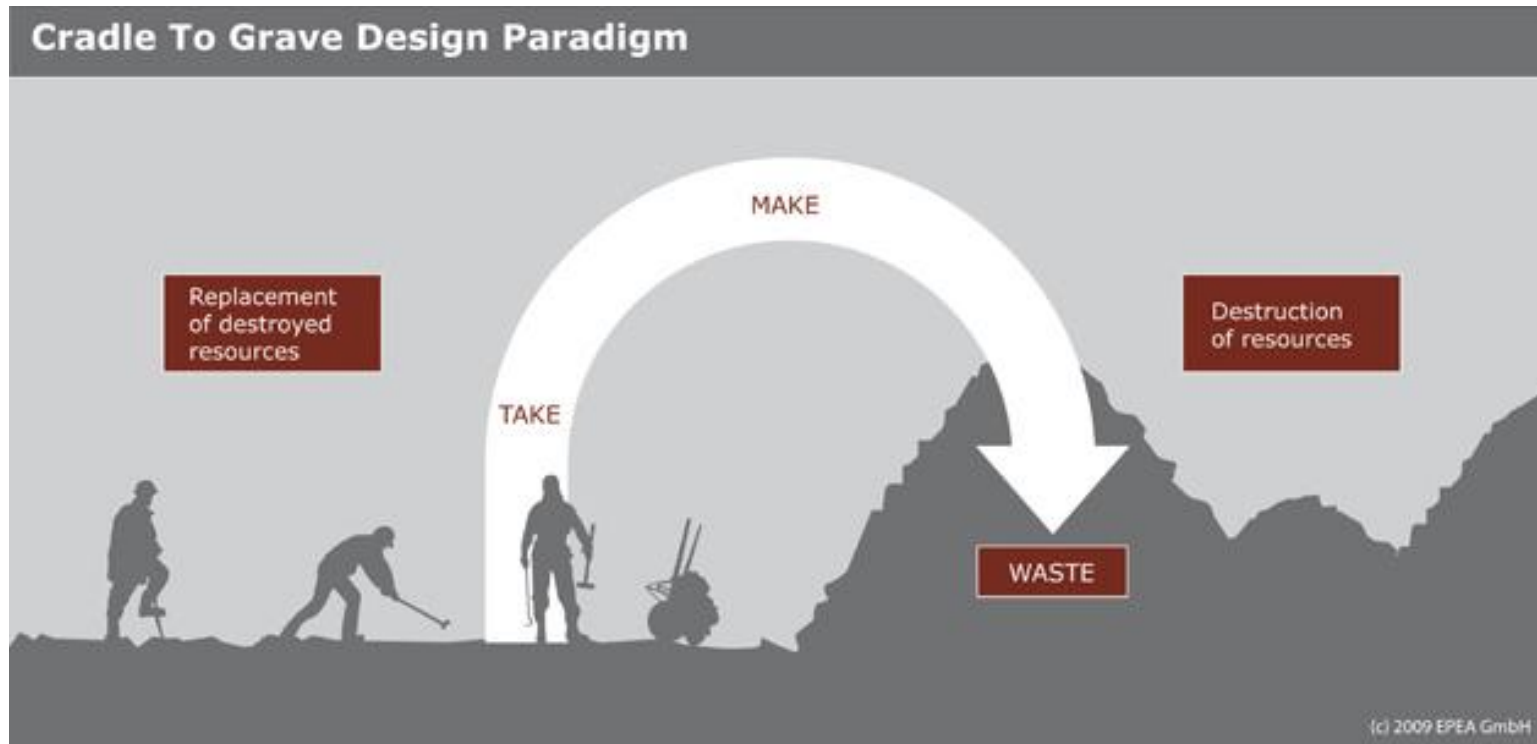
Mouvement Ecologique 26.03.2015



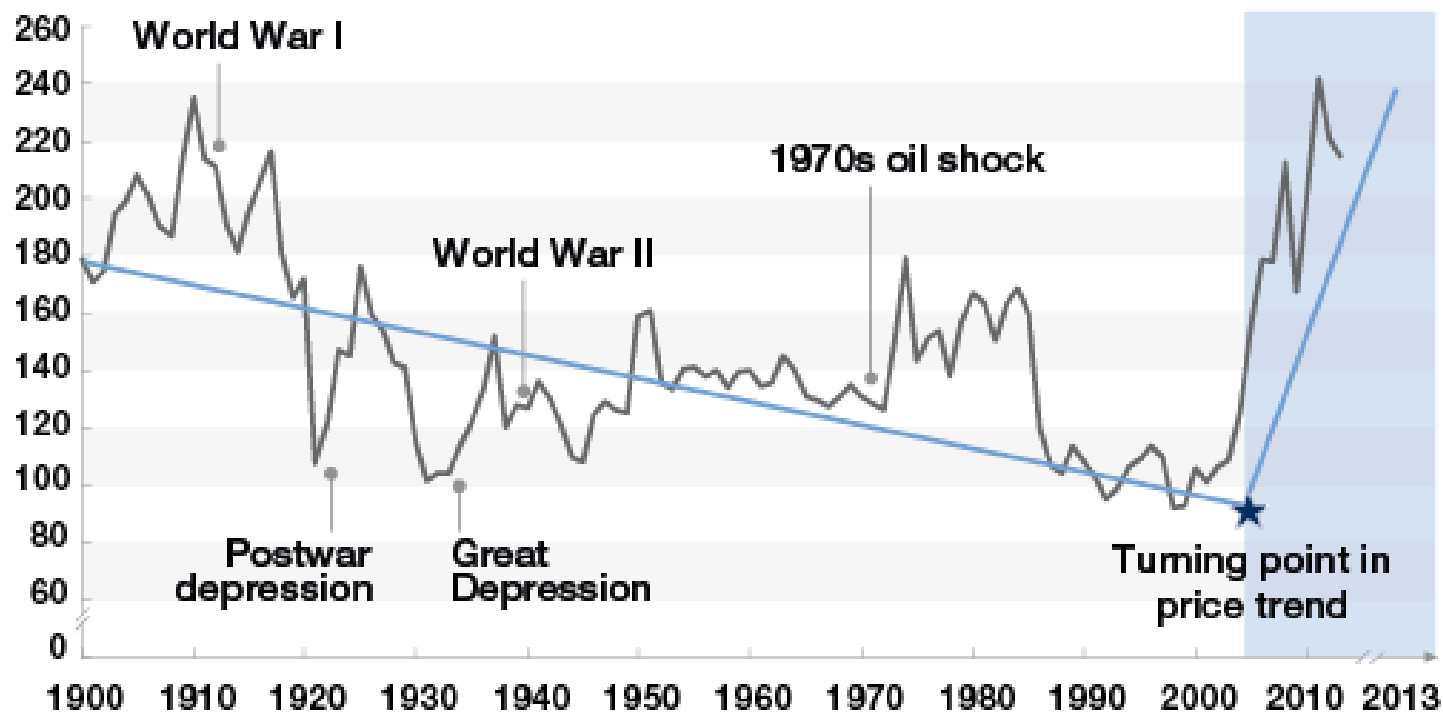
LE GOUVERNEMENT  
DU GRAND-DUCHÉ DE LUXEMBOURG  
Ministère de l'Économie



# Why Circular Economy?



# Commodity Price Index



McKinsey Commodity Price Index (1)

Index: 100 = years 1999–2001

1 Based on the arithmetic average of four commodity sub-indexes: food, non-food agricultural items, metals, and energy.



# Key messages



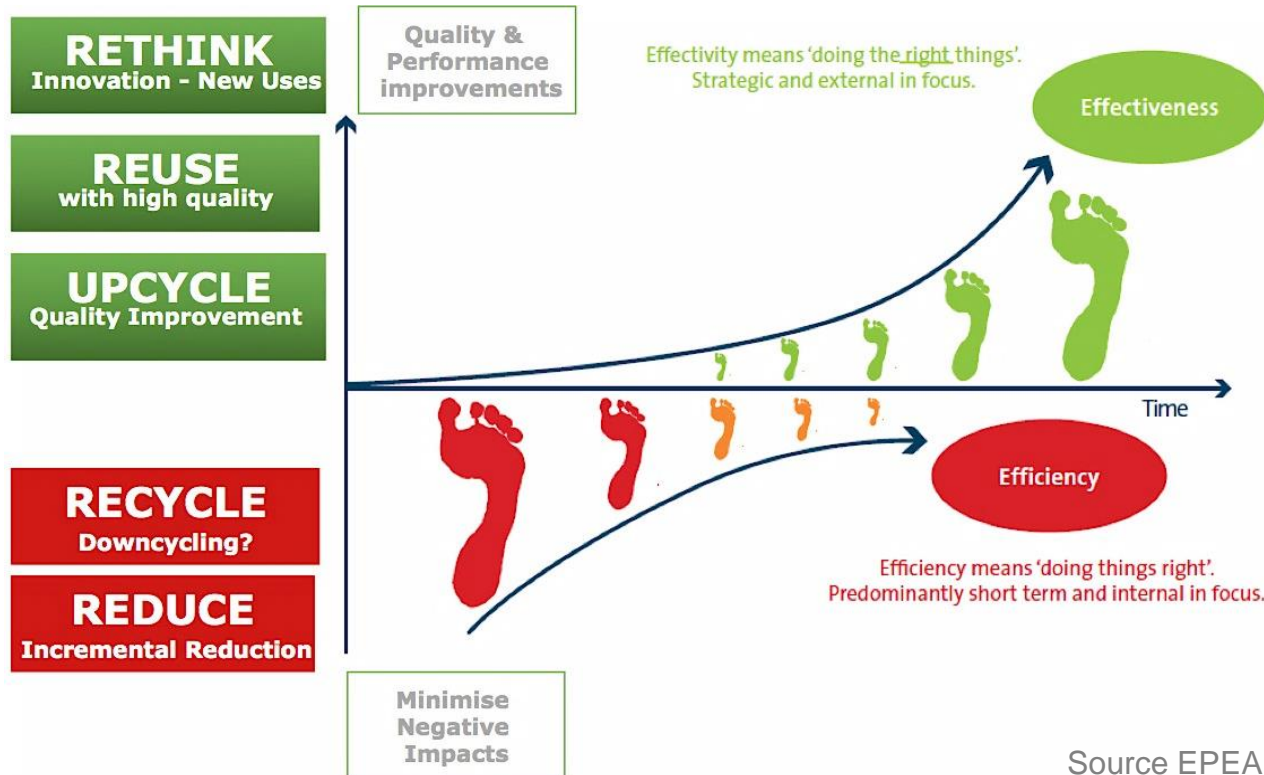
- Decoupling growth from resource consumption
  - » Growing and consuming but with a fixed or renewable stock of materials
  
- Replace raw material costs with labour costs
  - » Return, reuse, repair, refurbish,...
  - » Cost neutral shift, encouraged by tax shift,...
  
- Sell services, not products
  - » Product responsibility stays with the manufacturer
  
- Material banking
  - » Products are stocks of well defined reusable materials



- New resilient business models
  - » Increasing competitiveness and strong bonds with stakeholders
  
- It is a global and cross-sector approach
  - » All sectors are concerned but they will evolve at different paces
  
- It is **not** about recycling that results in downcycling
  - » Review the whole value chain, from the design to the dismantling
  
- It is **not** about a perfect circle
  - » Products are mostly transformed into different products



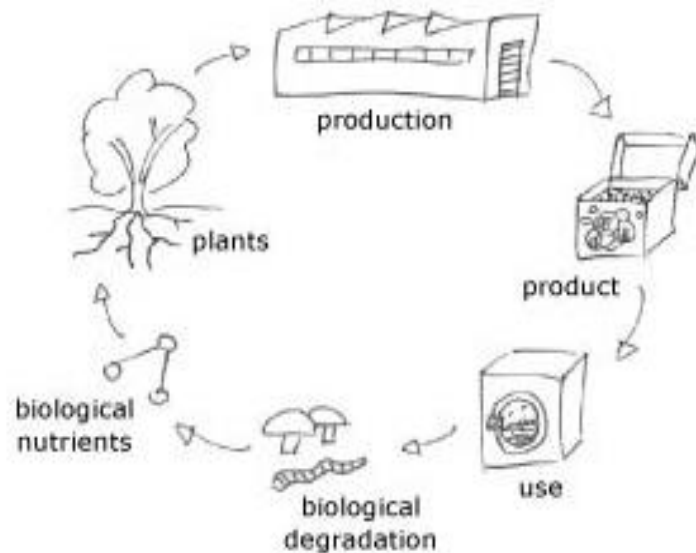
## ➤ Doing a lot of good instead of doing less bad



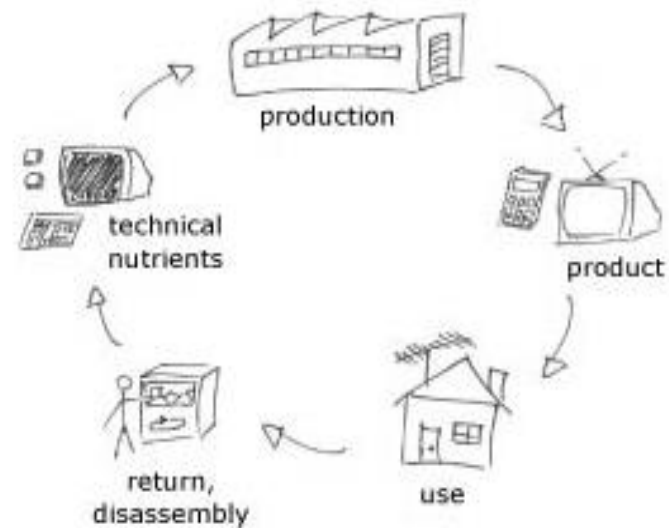




## ➤ Riding the bicycle



**biological cycle**  
for Products for Consumption



**technical cycle**  
for Products for Service

# Use them wisely



It doesn't matter how many resources you have.



If you don't know how to use them,  
it will never be enough.



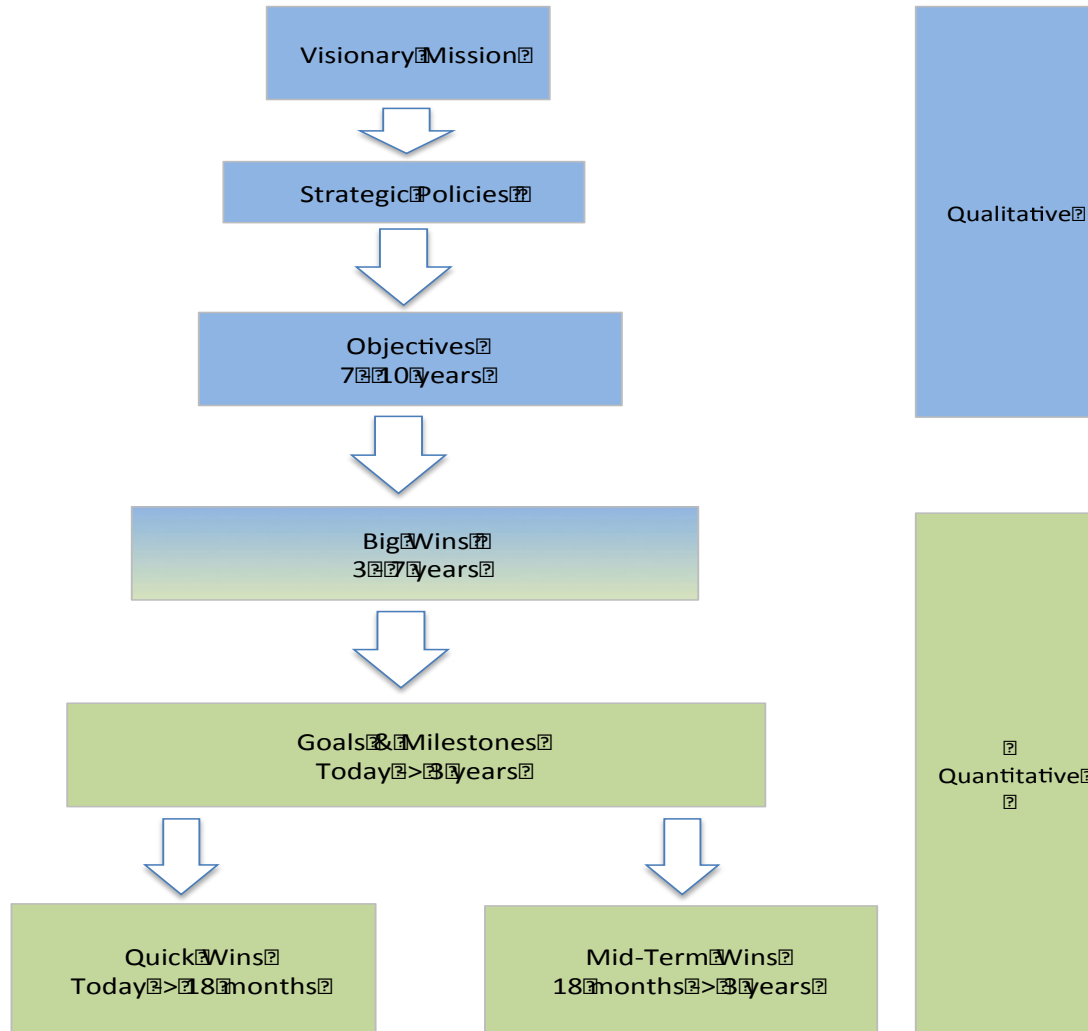
# The study



- **EPEA** in association with **Returnity Partners**
  
- Focus on materials
- Assessment of the situation today
- Assessment of the potential for Luxembourg
- S.W.O.T
- Strategies and Roadmaps
  
- Study Highlights available as download
  - [eco.public.lu](http://eco.public.lu) / [ecoinnovationcluster.lu](http://ecoinnovationcluster.lu) / [letzgreen.lu](http://letzgreen.lu)



## ➤ The plan



Source EPEA



- Circularity is already an economic imperative for Luxembourg and is being used to generate employment and stay competitive
  - » steel, aluminium, glass, and other industries are experts at re-using secondary raw materials
- Businesses use it but don't call it circular economy, hence the positive impacts are understated
- Nevertheless, the economy is still predominantly linear



- Circularity already supports 7.000 – 15.000 jobs
- €1 billion annually in economic activities in Luxembourg
- Including large manufacturers
  - » ArcelorMittal, Eurofoil, Guardian Industries, Norsk, Tarkett, Tontarelli, ...
  - » building developments like Ecoparc Windhof
  - » retailers Oikopolis, Pall Center and Cactus
  - » Luxembourg leads Europe in automotive leasing, uses building equipment leasing and is starting car sharing



- Logistics: 50 million tonnes per year transported through hubs
- Excavation: inert waste. ~10 million tonnes per year
  - » might also be considered an asset
- CO<sub>2</sub> emissions: ~6,2 - 10 million tonnes per year but skewed by 'tank tourism'
- Steel & Aluminium from recycled sources ~2,1 million tonnes per year
- Waste exports 800.000 tonnes per year
- Incineration 120.000 tonnes per year





- For some fractions sub-scale volumes and limited value chain coverage
- Excellent geographic location and multi-cultural capabilities with an already extremely high share of transit volume and business relationships
- The Greater Region is an important partner
- Lack of economic indicators, statistics and LCA scoping parameters to measure progress
- Excellent R&D and piloting capabilities across wide spectrum of CE-relevant topics



- Traditional forces blocking innovation and systems redesign
- Diversified economy encapsulated in a focused geographic location with strong personal and professional ties to effect cross-sectorial change
- Little awareness about CE-opportunity in business community
- Potential for confusion about circularity theory and practice
- Motivation is very high
- A government with clear commitment to guide economic development according to strategic objectives



- Systems and Services
  - » Supplier communities, logistics, ICT, buildings
- Products
  - » Automotive, construction, food, glass, household goods, metal
- Components
  - » Re-using, remanufacturing, recycling
- Materials
  - » Paper, metal, polymers, biochemicals, biomass, secondary raw materials and composites
- Additives and Ingredients
  - » For composites, glass, metals, polymers & wood
- Government leadership will enable the private sector to seize opportunities to generate positive impacts and added value through innovation



- Generate €300 million to €1 billion EUR annual net-material cost savings
  
- 2.200 jobs especially for young unemployed in the next years
  - » if robustly applied in the construction, automotive, manufacturing, financial, logistics, R&D, and administrative sectors.
  
- Strengthen Luxembourg's resilience and support new employment by improved material productivity as well as innovation



- The study considered how Luxembourg might focus on doing a few things well but still support diverse stakeholders in its economy
  
- The potential solution is for the government to lead on selected priorities while empowering stakeholders with educational and training platforms to innovate on their own
  
- Leadership on selected priorities includes primarily supporting light-house initiatives for example
  - » Hands-on education & training
  - » Pilot projects for upcycling & classifying secondary raw materials
  - » National quality co-brand circularity pilots
  - » Pilot transforming supplier chains into circular supplier communities

# Structuring and federating



## Getting Started. Circular Economy Working Group & Pathway to Pilot Projects

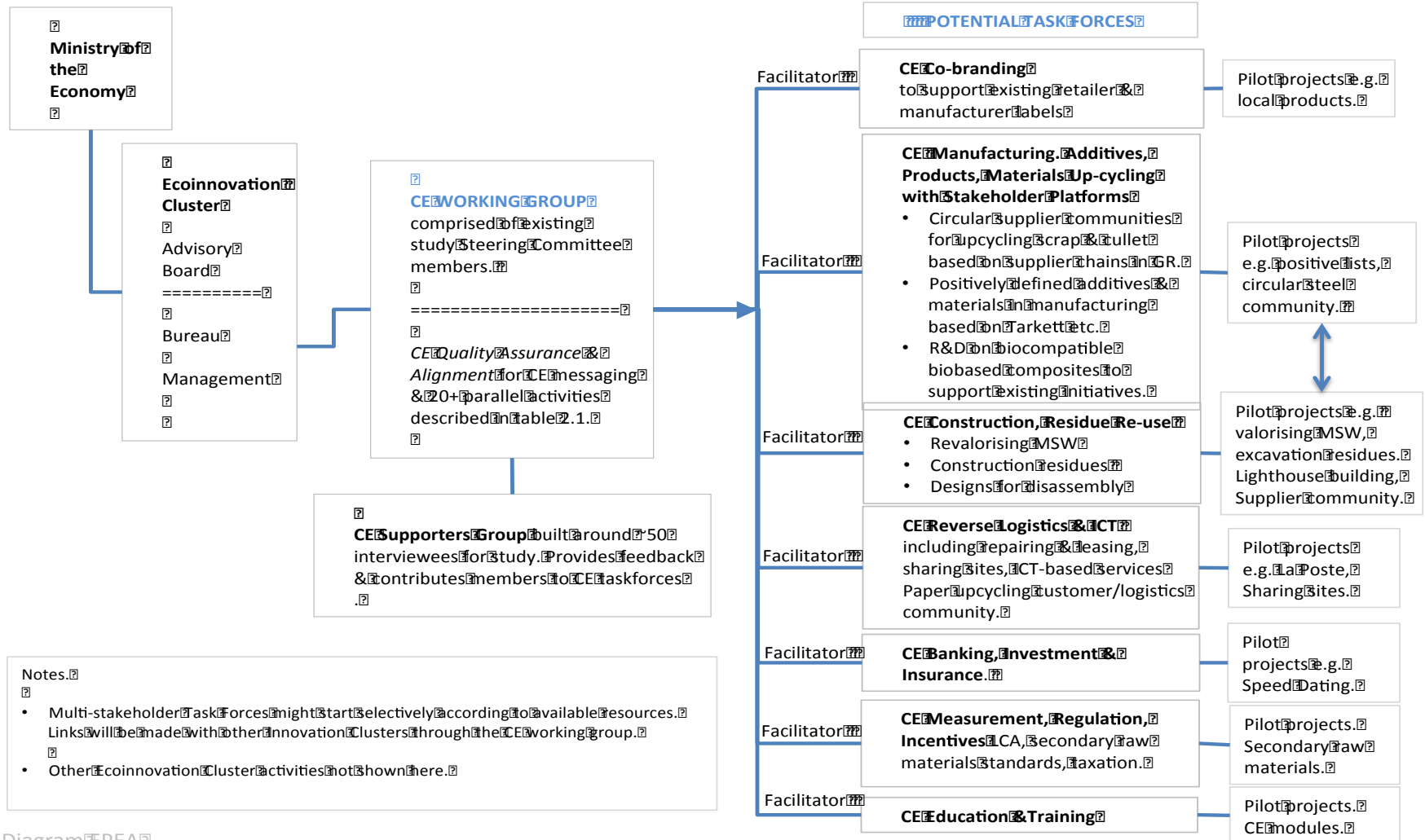


Diagram PEA



- No action-plan without **participants**
  - » Call for participants, ideas and projects!
  - » [www.ecoinnovationcluster.lu](http://www.ecoinnovationcluster.lu)

» LinkedIn



- Stakeholders decide what is feasible and what will be done
- **Top down** projects AND **bottom up** projects
- **Strategy and 10 roadmaps** step by step



Quick-mid/term or big wins

## Top down examples

- Database on material flow
- EcoBusinessParc
- LCA / balance sheet
- National CE co-branding
- Construction & excavation waste program
- CE Training space
- CE Finance initiative

## Bottom up examples

- Papercycling (on Kirchberg)
- Biosourced / Recycled Construction materials
- Reverse logistics
- Residential Building Pilot





# Why Circular Economy?

# Why Circular Economy?



LE GOUVERNEMENT  
DU GRAND-DUCHÉ DE LUXEMBOURG

➤ Because it's green





**The Circular Economy is proud to announce the marriage of**

## **Economy and Ecology**

**After all these years, they finally realized they  
belong together and will now be united to  
never come apart again**



**We look forward to welcoming you to the party!**



**Thank you for your attention**

Christian Tock

Directorate New Technologies  
[christian.tock@eco.etat.lu](mailto:christian.tock@eco.etat.lu)