

Joint Dynamix - Polfree Policy Platform
**“An ambitious Circular Economy Package for Europe:
realizing the social, economic and environmental benefits
of resource efficiency in Europe”**

***“Reloading the Circular Economy Package:
Member States perspectives & expectations”***

Bruxelles 13-14 April 2015



MINISTERO DELL'AMBIENTE
E DELLA TUTELA DEL TERRITORIO E DEL MARE



2014 Italian Presidency
of the Council
of the European Union

Aldo Ravazzi Douvan

Italian Ministry of Environment, Land & Sea

aldo.ravazzi@tfambiente.it

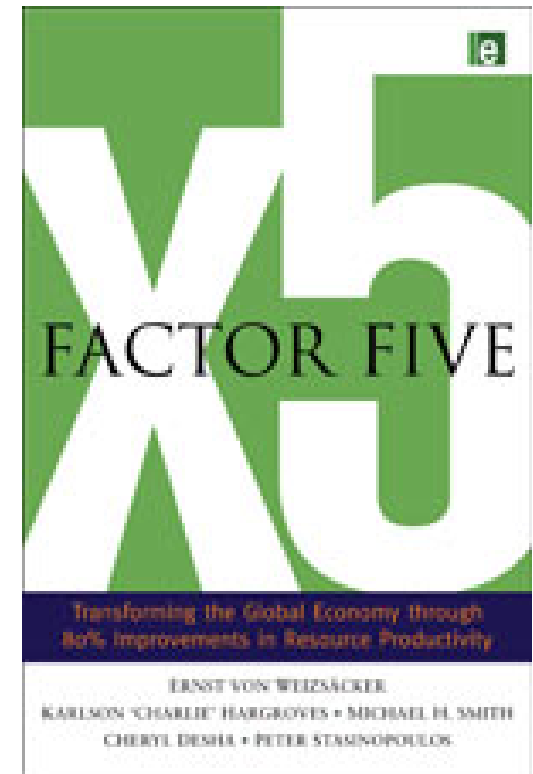
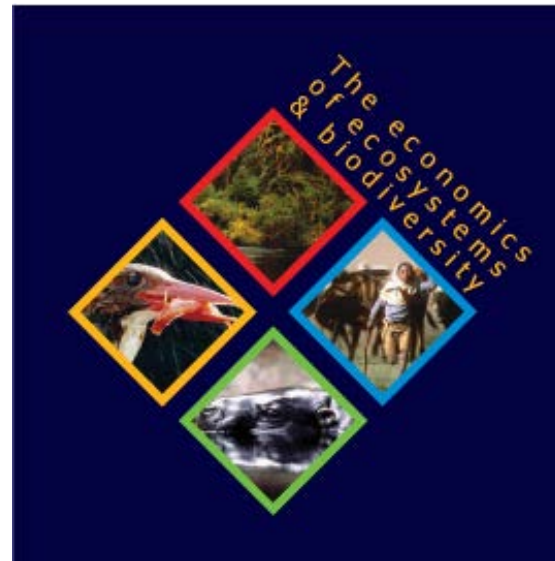
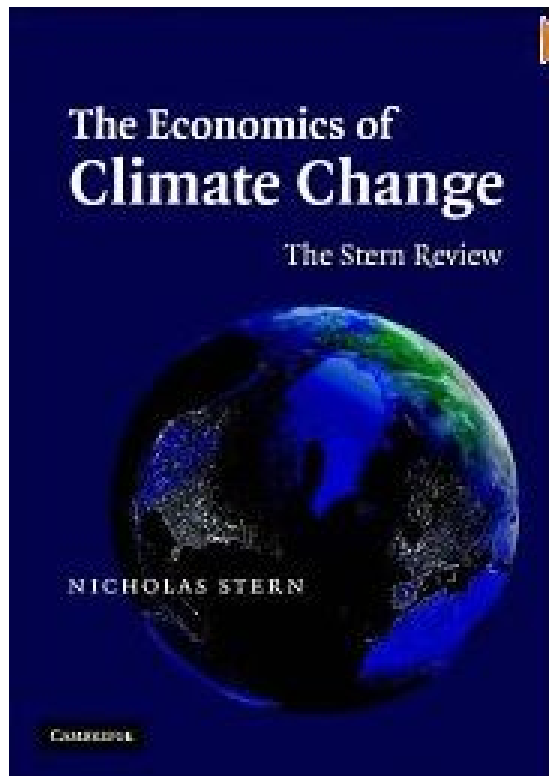
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ENVIRONMENT OR OF THE ITALIAN GOVERNMENT

RESOURCE EFFICIENCY

OUTLINE

- 1.Origins of Resource Efficiency: Factor 4**
- 2.The G8-3R Initiative**
- 3.OECD supporting 3Rs and RP**
- 4.UNEP Resource Panel**
- 5.Europe at work**
- 6.EU Resource Efficiency Roadmap**
- 7.Resource Efficiency in the context of Europe
2020 strategy**

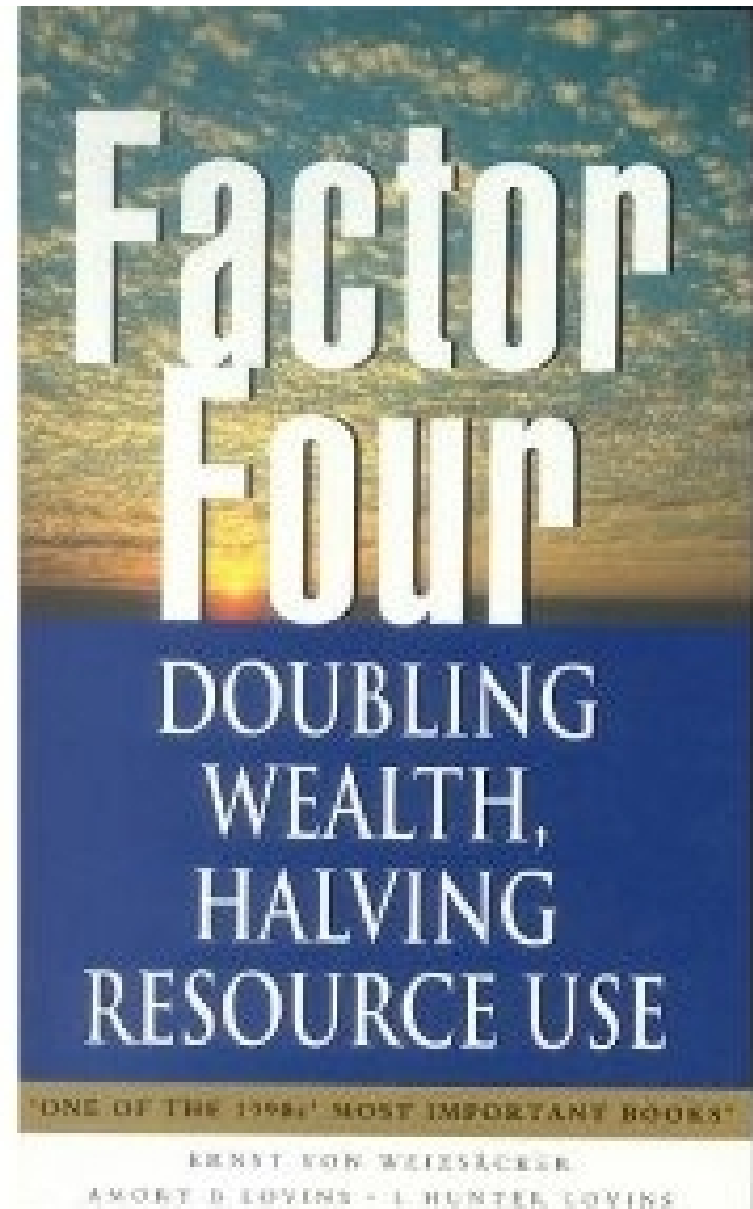
Economics of Sustainable Development



- [Nicholas Stern](#) (2006), "[The Economics of Climate Change - The Stern Review](#)", HM Treasury, London
- [Pavan Sukhdev](#) ed. (2010 e 2011), "[TEEB - The Economics of Ecosystems and Biodiversity](#)", vol.1 "TEEB: Ecological and Economic Foundations", vol.2 "TEEB in National and International Policy Making", Earthscan, London
- [E. Von Weizsaecker](#) et al. (2009), "[Factor 5 - Transforming the Global Economy through 80% Improvements in Resource Productivity](#)", Earthscan, London

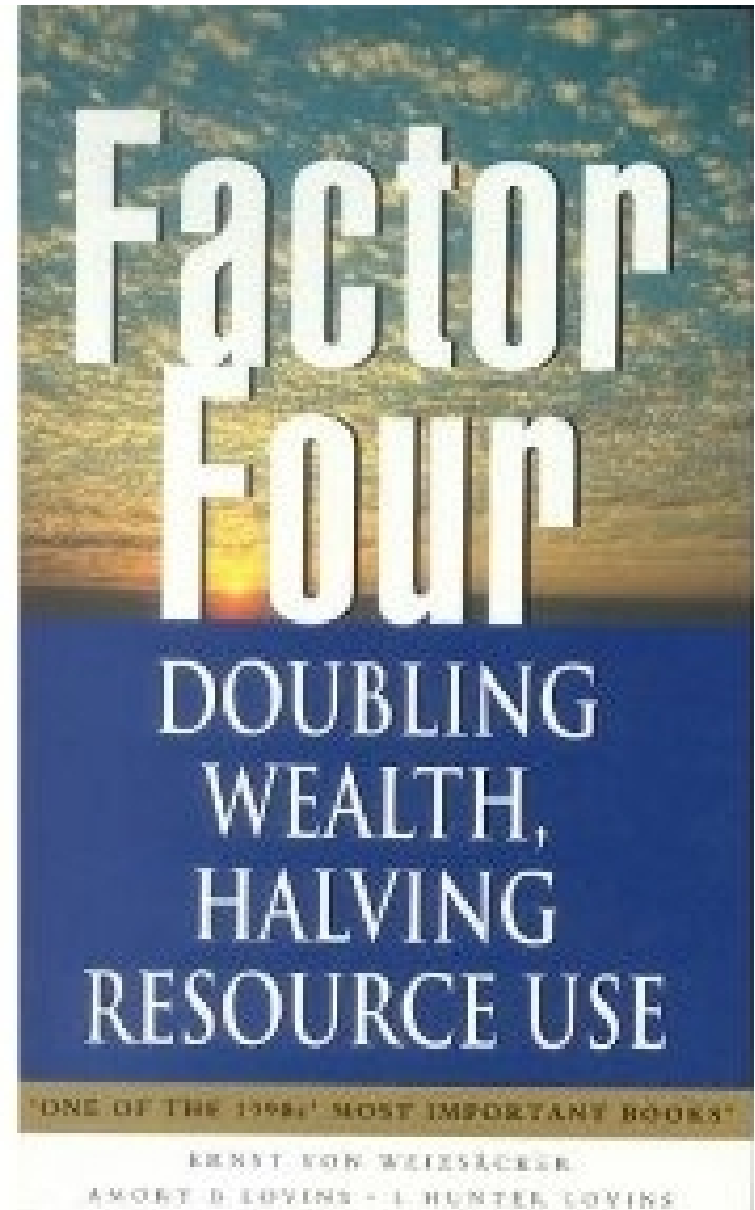
1.Origins of Resource Efficiency: Factor 4

- Factor 4: the goal of being twice as productive with half the resources (materials and energy), leading to a factor 4 improvement in efficiency.
- In other words: practices which are just as productive with 1/4 of the resources or 4 times as effective with the same resources.
- The concept was introduced in the 1998 book, [Factor 4](#), written by L. Hunter Lovins and Amory Lovins of the Rocky Mountain Institute, and Ernst von Weizsäcker, founder of the Wuppertal Institute for Climate, Environment & Energy.



1.Origins of Resource Efficiency: Factor 4

- The book explains how relatively easy it is for businesses to achieve these results with existing technologies.
- It has many examples of real-world projects that save money and reduce pollution simultaneously.
- Another way of phrasing the Factor 4 efficiency gain is that it reduces energy and materials usage by 75%.
- While Factor Four is a common term representing a minimum four-fold increase, Factor Ten represents an even greater challenge (-90%).



1.Origins of Resource Efficiency: Factor 4

- **50 EXAMPLES OF QUADRUPLING RESOURCE PRODUCTIVITY**
- **20 Examples of Revolutionising Energy Productivity**
- The Rocky Mountain Institute Headquarters
- Superwindows and Large Office Retrofits
- Renovating Masonry Row Houses
- Super Refrigerators
- Office Equipment
- Renewables in a Cold Climate
- The Frontiers of Air Conditioning
- Quadrupling Energy Productivity in Five Small Steps
-

1.Origins of Resource Efficiency: Factor 4

- FIFTY EXAMPLES OF QUADRUPLING RESOURCE PRODUCTIVITY
- 20 Examples of Revolutionising Material Productivity
- Durable Office Furniture
- Electronic Books and Catalogues
- Water Efficiency in Manufacturing
- Cotton Production with Less Water
- Rehabilitating versus Demolishing Buildings
- A Strategy for Improving Material
- Wide Span Heavy Duty Wood Construction
- ...

1.Origins of Resource Efficiency: Factor 4

- FIFTY EXAMPLES OF QUADRUPLING RESOURCE PRODUCTIVITY
- 10 Examples of Revolutionising Transport Productivity
- Videoconferences
- Electronic Mail
- The Soft Options for Rapid Trains (Pendolino & CyberTran)
- Quadrupling the Capacity of the Existing Train Network
- Car Free Mobility
- Car-Sharing in Berlin
- Strawberry Yoghurt
- Getting the Village Feeling in the City
- ...

1.Origins of Resource Efficiency: Factor 4

IF MARKETS CREATE THE PROBLEM

- Market Theory versus Practice
- Utility Regulatory Reform
- Making Negawatt Markets and Beyond

REWARD WHAT WE WANT NOT THE OPPOSITE

- Responsibility Requires Responsiveness to Feedback
- Making Prices Tell the Truth

ECOLOGICAL TAX REFORM

- Much Scope for International Harmonisation

1.Origins of Resource Efficiency: Factor 4

THE CHALLENGE FROM

- The Greenhouse Effect and the Climate Convention
- Species Extinction and the Biodiversity Convention

AVALANCHES OF MATTER: THE FORGOTTEN AGENDA

- The Factor Ten Club
- Steering From the Wrong End
- Ecological Audits Costly but Possibly Enlightening
- Population Dynamics

2.The G8-3R Initiative - Process

- Promoted by Japan in the frame of the G8
- 3“R”s: Reduce, Reuse and Recycle waste and more and more natural resources
- G8 Environmental Minister Meeting (Kobe, Japan, May 2008): Kobe 3R Action Plan

Preparation:

- The Second Asia 3R Conference (Tokyo, Japan , March 2008)
- Senior Officials Meeting on the 3R Initiative (Bonn, Germany, Oct.2007)
- Ministerial Conference on the 3R Initiative (Tokyo, Japan, April 2005)
- Senior Officials Meeting on the 3R Initiative (Tokyo, Japan, Mar. 2006)
- Asia 3R Conference (Tokyo, Japan, November 2006)

2.The G8-3R Initiative: 3 Goals, 9 Actions, 1 Follow-up

- I. Goal 1: Prioritize 3Rs Policies and Improve Resource Productivity
- Action 1-1: Prioritize Implementation of 3Rs Policy
- Action 1-2: Improve Resource Productivity and Set Targets
- Action 1-3: Pursue Co-benefits between the 3Rs and Greenhouse Gas Emission Reductions
- Action 1-4: Promote Science and Technology and Create a Market for 3Rs-related Products
- II. Goal 2: Establishment of an International Sound Material-Cycle Society
- Action 2-1: Collaborate to Promote Sound International Resource Circulation
- Action 2-2: Promote International Trade of 3Rs-related Materials, Goods and Products
- III. Goal 3: Collaborate for 3Rs Capacity Development in Developing Countries
- Action 3-1: Promote Collaboration with Developing Countries
- Action 3-2: Promote Technology Transfer, Information Sharing and Environmental Education
- Action 3-3: Promote Partnership between Stakeholders
- IV. Follow-up on G8 Activities Based on the Action Plan

2. 3Rs - Convergence of Concepts and Policies

- ☀ 3Rs (Reduce, Reuse, Recycle) - Japan
- ☀ Waste Hierarchy - EU
- ☀ Material flows and resource productivity, Sustainable materials management - OECD
- ☀ Circular Economy - China
- ☀ Zero-Waste or Low-Waste Economy or Sound Material Cycle Economy - Japan
- ☀ Cleaner Production and Technologies - Usa
- ☀ Product design, Life cycle assessment
- ☀ From Cradle to Cradle
- ☀ Sustainable Production & Consumption Models - UNEP-CSD
- ☀ Extended Producer Responsibility
- ☀ Green Purchasing Procurement
- ☀ Factor 4 policies

3.OECD Council Recommendations

- Resource Efficiency (2004)
- Resource Productivity (2008)

Based on Material Flow Analysis

“Recommends” Member States to analyze, measure, take action for resource efficiency

3.OECD supporting 3Rs and RP (1)

- OECD has reported as requested to the G8 (and G20) in Deauville 2011
- “Resource productivity in the G8 and the OECD - A Report in the Framework of the Kobe 3R Action Plan”
- The 2008 G8 Kobe 3R Action Plan had asked to the OECD “to follow up on the progress of the work related to resource productivity” in 2011
- The OECD Recommendation on Resource Productivity also requested follow up.
- The report is considered an interim evaluation to be continued in the future, the frame of the RP Recommendation is available (G8?).
- “Going for green growth and establishing a resource efficient economy” is considered a major environmental, development and macroeconomic challenge”.
- “Improving resource productivity and putting in place policies that ensure a sustainable waste and materials management building on the principle of the 3Rs is crucial”.

3.OECD supporting 3Rs and RP (2)

- Global extraction of material resources continue to grow
- But there are signs of decoupling from global economic growth
- G8 Countries have improved:
 - 1980-2007: material intensity down by 47%
 - per capita material consumption from 20 to 18 t/year
- OECD Countries similar:
 - 1980-2007: -42%
 - -1,5% down to 17,6t/year

3.OECD supporting 3Rs and RP (3)

- But the overall level of material consumption has continued to grow in parallel with economic growth: it`s only relative decoupling
- In spite of the 2008 financial crisis
- Per capita consumption in G8 and OECD remains 3 times higher than in the Rest of the World

3.OECD supporting 3Rs and RP (4)

- Within the G8:
- CAN-GER-ITA-JAP have succeeded absolute decoupling
- For some materials, absolute decoupling in all G8 countries:
 - - wood,
 - - construction minerals,
 - - industrial minerals,
 - - metals

3.OECD supporting 3Rs and RP (5)

- Indirect material flows:
- But if take into consideration flows associated with trade (e.g. materials for resource extraction and processing),
- Progress of net importers countries is more modest

3.OECD supporting 3Rs and RP (6)

- G8: mixed picture on waste generation:
- In general positive trend in municipal waste management
- Per capita solid management waste: -4% over the last 10 y. in OECD, while GDP continued growing
- Recycling rates continuously increasing: glass, steel, aluminium, paper, plastics

3.OECD supporting 3Rs and RP (7)

- **Combination of policies needed:**
 - ecodesign, information policies
 - waste policies inspired by 3Rs philosophy**+ approaches for full-life cycles of materials and SMM principles developed by OECD**
- **All G8 and most OECD Countries are adopting them.**
- **But policies challenged by:**
 - transboundary dimension of supply chains
 - complexity of most supply chains
 - large n. of economic actors involved

3.OECD supporting 3Rs and RP (8)

- OECD countries need additional efforts:
- - scale-up and improve existing policies (consistency and integration, including for trade of certain wastes and raw materials)
- - further work needed to improve the understanding of environmental impacts and costs of resource use thru the life-cycle of materials and products
- - development of compatible databases for key material flows
- - further development of MF & RP indicators
- - sharing of good practices within countries, among countries and among enterprises

4. UNEP Resource Panel (1)

- **UNEP's International Panel on Sustainable Resource Management (Resource Panel) launched in 2007 with the aim of:**
 - providing independent scientific assessment of the environmental impacts due to the use of resources over the full life cycle, and
 - advise governments and organisations on ways to reduce these impacts.
- **Chaired by Ernst Von Weizsaecker (Factor 4 and recent Factor 5) and Ashok Khosla (IUCN President), among members Yuichi Moriguchi, Yon Reng, Jacqueline McGlade, Partha Dasgupta, ...**

4. UNEP Resource Panel (2)

Publications/Reports

- **Recycling rates of metals (2011)**
- **Decoupling natural resources use and environmental impacts from economic growth (2011)**
- **Priority products and materials: assessing the environmental impacts of consumption and production (2010)**
- **Metal stocks in society: scientific synthesis (2010)**
- **Assessing biofuels: towards sustainable production and use of resources (2009)**

4. UNEP supporting 3Rs and RP(3)

- UNEP's "Paving the way for Sustainable Consumption and Production - The Marrakech Process Progress Report"(2011)
- UNEP work on Green Economy "Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication" (2011)
- UNEP work on Green Jobs

5. Europe at work (1)

- **European Commission**
- Strategy on the Sustainable Use of Natural Resources used in Europe (2005);
- Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan (2008);
- Raw Materials Initiative (2008) on measures to secure access to non-energy raw materials;

5. Europe at work (2)

European Environment Agency



The European Topic Centre on Sustainable Consumption and Production (a Consortium of 8 professional organizations under contract with the EEA)



- EEA “Initial findings from the analysis of draft national reports on resource efficiency and instruments” (May 2011)
- <http://scp.eionet.europa.eu>
- <http://www.eea.europa.eu/themes/economy/resource-efficiency/>

5. Europe at work (3)

- European Commission
- “A resource-efficient Europe - Flagship initiative under the Europe 2020 Strategy”
COM(2011)21, January 2011
- Wide consultation of stakeholders in Spring 2011
- “Resource Efficiency Roadmap” in Sept. 2011
- “European Resource Efficiency Platform” (2012) with stakeholders
- Expert Group “The economics of environment and resource use”, economists advising the Environment Commissioner (2012) (including Ekins, Convery, Tubiana, Giovannini)

RESOURCE EFFICIENCY

Using less, living better

6.Resource Efficiency at EU - 1

- Resource efficiency means using the Earth's limited resources in a sustainable manner.
- We depend on natural resources - metals, minerals, fuels, water, land, timber, fertile soil, clean air and biodiversity - for our survival.
- They all constitute vital inputs that keep our economy functioning.

RESOURCE EFFICIENCY

Using less, living better

6.Resource Efficiency at EU - 2

- Increasing resource efficiency is key to securing growth and jobs for Europe.
- It brings major economic opportunities, improves productivity, drives down costs and boosts competitiveness.
- We need it to develop new products and services and find new ways to reduce inputs, minimise waste, improve management of resource stocks, change consumption patterns, optimise production processes, management and business methods, and improve logistics.

RESOURCE
EFFICIENCY
Using less, living better

6.Resource Efficiency at EU - 3

- Resource efficiency will
- help stimulate technological innovation,
- boost employment in the fast developing 'green technology' sector,
- open up new export markets and
- benefit consumers through more sustainable products.

6.Resource Efficiency at EU - Basic Facts 1

- Over the 20th century, the world increased its fossil fuel use by a factor of 12, whilst extracting 34 times more material resources.
- Today in the EU, each person consumes 16 tonnes of materials annually, of which 6 tonnes are wasted, with half going to landfill. Trends show, however, that the era of plentiful and cheap resources is over.
- Businesses are facing rising costs for essential raw materials and minerals, their scarcity and price volatility are having a damaging effect on the economy.

6.Resource Efficiency at EU - Basic Facts 2

- Sources of minerals, metals and energy, as well as stocks of fish, timber, water, fertile soils, clean air, biomass, biodiversity are all under pressure, as is the stability of the climate system.
- Whilst demand for food, feed and fibre may increase by 70% by 2050, 60% of the world's major ecosystems that help produce these resources have already been degraded or are used unsustainably.
- If we carry on using resources at the current rate, by 2050 we will need, on aggregate, the equivalent of more than two planets to sustain us, and the aspirations of many for a better quality of life will not be achieved.

6.Ex. Milestone: By 2020 a major shift from taxation of labour towards environmental taxation, including through regular adjustments in real rates, will lead to a substantial increase in the share of environmental taxes in public revenues, in line with the best practice of Member States.

- In order to address the issues of environmentally harmful subsidies and better price signals,
- the Commission will:
 - Monitor via the European Semester Member States' follow-up to country-specific recommendations on fiscal reform that favours a shift from the taxation of labour to environmental impacts and the phasing out of EHS from 2012;
 - Promote regular exchange of best practices and peer reviews on the reform of EHS and on market based instruments between the Member States, in particular under the Market Based Instruments Forum and the Taxation Policy Group (continuous);
 - Assess how state aid for measures aiming at increasing resource efficiency has been implemented and to what extent resource efficiency objectives should be strengthened in the revisions of the relevant state aid guidelines as of 2013;
 - Continue working on improving indicators on the use of taxes on pollution and resources.

6.Milestone ex.: By 2020 a major shift from taxation of labour towards environmental taxation, including through regular adjustments in real rates, will lead to a substantial increase in the share of environmental taxes in public revenues, in line with the best practice of Member States.

- Member States should:
- • Identify the most significant EHS pursuant to established methodologies (by 2012);
- • Prepare plans and timetables to phase out EHS and report on these as part of their National Reform Programmes (by 2012/2013);
- • Shift taxation away from labour to environmental impacts (continuous);
- • Review their fiscal policies and instruments with a view to supporting resource efficiency more effectively, and in this context reflect on incentives to support consumer choices and producer action in favour of resource efficiency (by 2013).

7.Resource Efficiency in the context of Europe 2020 strategy

Europe 2020 Strategy - 1

- The European Union is working hard to move decisively beyond the crisis and create the conditions for a more competitive economy with higher employment.
- The Europe 2020 strategy is about delivering growth that is:
- **smart**, through more effective investments in education, research and innovation;
- **sustainable**, thanks to a decisive move towards a low-carbon economy; and
- **inclusive**, with a strong emphasis on job creation and poverty reduction.



Europe 2020 Strategy - 2

The strategy is focused on five ambitious goals in the areas of employment, innovation, education, poverty reduction and climate/energy.

To ensure that the Europe 2020 strategy delivers, a strong and effective system of economic governance has been set up to coordinate policy actions between the EU and national levels.



The 5 targets for the EU in 2020

- **1. Employment**
 - 75% of the 20-64 year-olds to be employed
- **2. R&D**
 - 3% of the EU's GDP to be invested in R&D
- **3. Climate change and energy sustainability**
 - **greenhouse gas emissions 20%** (or even **30%**, if the conditions are right) **lower than 1990**
 - **20% of energy from renewables**
 - **20% increase in energy efficiency**



The 5 targets for the EU in 2020

- **4. Education**
 - Reducing the rates of early school leaving below 10%
 - at least 40% of 30-34-year-olds completing third level education
- **5. Fighting poverty and social exclusion**
 - at least 20 million fewer people in or at risk of poverty and social exclusion



Europe 2020 Strategy - 7 Flagship Initiatives

- Europe has identified new engines to boost growth and jobs. These areas are addressed by **7 flagship initiatives**.
- Within each initiative, both the EU and national authorities have to coordinate their efforts so they are mutually reinforcing. Most of these initiatives have been presented by the Commission in 2010.



Europe 2020 Strategy - 7 Flagship Initiatives

- Smart growth
 - Digital agenda for Europe
 - Innovation Union
 - Youth on the move
- Sustainable growth
 - Resource efficient Europe
 - An industrial policy for the globalisation era
- Inclusive growth
 - An agenda for new skills and jobs
 - European platform against poverty

ITALY supporting 3Rs, REff and CE

We already have a number of measures/policies

1. ISTAT SMM-related Statistics
2. CONAI (Waste Packaging)
3. Energy and Eco-design
4. Traditionally high fuel taxation (but low prices + \$/€)
5. Regional taxes on extraction of materials from caves and riverbeds
6. REACH Regulation (Chemicals)
7. Sustainable Consumption and Production Patterns
8. Green Public Procurement
9. WEEE - Waste electric and electronic equipment
10. Support to the UNEP Resource Panel

ITALY supporting the Circular Economy package during the EU 2^o semester 2014 Italian Presidency

- 1. Not only waste**
- 2. Usefulness of targets**
- 3. Link to the 7th EAP and the EC CE Communication**
- 4. Integration into Europe 2020 Strategy**
- 5. Indicator of Resource Efficiency (6th)**
- 6. Integration of Environment into the European Semester process, of the Environment Council into the decision-making process**
- 7. Integration of Jobs Policy and Environment Policy**

Ways to strengthen the Circular Economy package (1-3)

1. Find the support of the business community

(firms looking for resource efficiency every single day; evidently not enough - cumulative effect)

2. A wise public intervention is justified

Framework conditions: incentives to R&D, tax expenditures, best practices are key, but pricing, GFRs - green fiscal reforms, removing EHSs - env. harmful subsidies are key

3. Find the support of Ministries of Economy & Finance:

- Public Finance - Employment - Balance of Payments
- Resource Security, Energy Security, Rare Earth Security
- Sterilize the oil price decrease? (should we leave to Emirs and other oil producers our resource policy?)
 - Climate Change, Planetary Boundaries

A danger/opportunity: RE/CE as a re-reading of SD?

(same barriers/oppositions?)

Ways to strengthen the Circular Economy Package (4-7)

- 4. Strengthen measurement: UN-SEEA, OECD, Eurostat; the question of the Indicator (TMR - EU impact on LDCs)**
apples & pears, lead & cotton, oil & rare earths
- 5. Strengthen the Governance: role of Environment in Europe 2020 and in the European Semester**
we can be the world best experts on resource efficiency, if we don't have the tools to influence the decision-making process...
- 6. Find the support of the policy-oriented scientific community**
using OECD work; using UNEP Resource Panel; using the EEA-ETC-SCP; *revive EREP*; revive the RE Economists Advisory Board; using Dynamix-Polfree; ...
- 7. Acting as EU countries all together is more resource efficient than acting alone...**