

OBJECTIVES OF THE MATERIAL RESOURCES EFFICIENCY POLICY AT COUNTRIES LEVEL

Georgiana Chițiga, Scientific Researcher⁶⁷

Abstract:

The objectives of material resource efficiency policies are a statement of intent and a recommendation to the objectives to be pursued and fulfilled in terms of their optimal use and management in a sustainable way. Over the last decade, we have been confronted with the general picture that the economic benefits of improving efficiency and circularity of the use of the resources are increasingly recognized and acted upon.

The starting point of this work is to highlight the conceptual complexity of the problems, the need to improve the policy initiatives. Due to the existence of a vague field of application, in which it seems difficult to make an in-depth assessment of progress, the countries are supported in developing resource efficiency strategies. It is imperative to be aware of the importance of the efficiency and the opportunities that it propagates and supports.

Keywords: *material resources, efficiency, objectives, initiatives.*

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Introduction

Over the last decade, the sustainable use of resources has received increasing attention in European Union policy, presenting itself as a smart way to address environmental, climate, economic efficiency and safety goals.

Since 2011, EU policies have evolved, so that through the Circular Economy Package published by the European Commission in 2015, resource efficiency efforts have gained additional support. The particular focus on closing material loops and reducing waste reflects the fact that low resource efficiency is due to the fact that resource use is still based on a linear economic model that cannot be sufficient or efficient to achieve the goals of Europe's 2050 vision.

Since 2015, additional policies have emerged on resource efficiency, on the circular economy and on the closure of material loops.

The European Environment Information and Observation Network (EIONET - EU Europe) and the European Center for Waste and Resources in the Green Economy (ETS / WMGE) have established a review of national approaches to material resource efficiency, as well as the identification of both similarities and differences between policies, strategies, indicators and targets, policy makers and institutional structure.

The main priority is policies and initiatives on material resources. Unlike the 2011 papers, the current analysis focuses on material resources, rather than largely defined natural resources.

The main objective considered is to support the experience gained in developing material resource efficiency policies.

The scope includes flows of materials entering / leaving the economy (biomass, non-metallic minerals, metal ores and fossil energy materials), as well as secondary raw materials (waste derivatives). Also, the scope is the transformations that materials undergo throughout their life cycle and the initiatives to close material loops in the context of a circular economy.

⁶⁷ Centre of Financial and Monetary Research „Victor Slăvescu”, e-mail: georgiana_chitiga@yahoo.com

National strategies and action plans for the efficient use of material resources and policy objectives

As a starting point, we wonder if:

- A. Do countries have a resource efficiency strategy or an action plan?
- B. Are there other national policies and strategies addressing resource efficiency in other areas?
- C. What general policy objectives for the efficiency of material resources are set out in these policies?

A. National strategies or action plans dedicated to the efficient use of resources

Three countries - Austria, Finland and Germany reported that they have a national strategy for the efficient use of material resources or an effective action plan targeting material resources.

The Resource Efficiency Action Plan (REAP) was adopted in 2012 and includes as a target - decoupling resource consumption from economic growth, as well as increasing resource efficiency by at least 50% by the end of this year.

The Finnish National Material Efficiency Programme — Sustainable Growth through Material Efficiency (2014) aims to achieve economic growth, both through the rational use of natural resources and the decoupling of sustainable materials from harmful effects on the environment.

In 2012, The German Resource Efficiency Programme (ProgRes) (updated in 2018) also ensures the sustainable extraction and use of natural resources, as well as a reduction in environmental pollution.

There are two more effective strategies that take into account material resources adopted at regional (subnational) level: the Sustainable Materials Management Program (Zero Waste - Safeguarding Scotland's Resources).

Both support recycling and reuse - in the case of Flanders (Belgium), the focus is on a set of measures to achieve a circular economy and in the case of Scotland (UK), by including resources, energy and water.

These five dedicated strategies cover different mixtures of materials and resources, but all aim to reduce the impact of resource use on the environment and their efficient use, and propose a considerable number of measures to achieve this goal.

The Austrian approach to REAP and the implementation of the RESET 2020 initiative are noteworthy due to the purpose of their activities, as well as the fact that Austria is currently one of the few European countries that has adopted quantitative targets to improve the efficient use of material resources.

Finland's national resource efficiency program is flanked by a number of projects on various topics such as the bioeconomy, sustainable mining and clean technologies. Programs aimed at consumption habits, greening of public procurement and the efficiency of building materials are underway.

Germany's progress is focused on non-energy abiotic resources, as well as the use of biotic resources. The updated version of the ProgRes program, which was published in 2018, has expanded its scope to include abiotic (fuel) and biotic energy resources (biofuel).

Other natural resources - such as water, air, soil, soil, biodiversity and ecosystems - are covered by other strategies, processes or legislation, and are not addressed in detail by ProgRes.

B. National policies and strategies to address material resources effectively in other areas

A wide range of national policies or strategies have been reported to address material resource efficiency through other topics.

The most common examples of policies and strategies reported by countries that include resource efficiency benchmarks will be reflected in the following table (Table 1).

Table 1

Policies and strategies aimed at the efficient use of material resources among the various topics (*)

No.	Policies and strategies aimed at resource efficiency	Mentions
1.	Strategies dedicated to the efficient use of resources	5
2.	Waste Management and Recycling	28
3.	Energy Strategy, Energetic efficiency	19
4.	Innovation, Industrial Development	19
5.	Sustainable development, Environmental Strategy	18
6.	Waste prevention	18
7.	Green Economy, Green jobs, Ecological growth	13
8.	Forestry, wood	12
9.	Climatic changes, Low carbon content	11
10.	Renewable Energy Action Plan	10
11.	Agriculture, Rural development	9
12.	Green Public Procurement	8
13.	Water	7

Source: <http://ec.europa.eu/eurostat/statistics-explained>

Note: (*) Based on the available information, a distinction has been made between energy and energy efficiency strategies, although both address energy. Waste was studied in the same way (waste management and recycling versus waste prevention).

The 18 countries that reported national strategies or action plans for sustainable development or environmental protection strategies include elements of efficient use of material resources as a general objective or policy measure.

Other policy groups that include material resource efficiency issues are green economy policies (13), such as: the Austrian Green Jobs Masterplan and the Swiss Green Economy Action Plan and policies for innovation and development. (19), including Smart Specialization in the Czech Republic, Bio-Economy in Germany, National Strategy for Environmental Technology Innovation in Hungary, Ecodesign for Energy Related Products in Portugal.

Specific raw material policies were reported by: Austria, Flanders (Belgium), the Czech Republic, Finland, Germany, the Netherlands and Slovakia - mainly focusing on mining and mining. Five other countries - Finland, Hungary, Kosovo, Norway and Sweden - reported on mineral resource strategies.

National action plans or strategies for building materials have been reported by two countries - Estonia and Liechtenstein.

Flanders (Belgium) presented a regional policy plan that aimed to extend the approach from construction and demolition waste collection to a perspective that aims to follow the life cycle of buildings and construction materials: production, design, construction, use, maintenance, end of life cycle and waste management and collection.

A total of 62 thematic strategies for specific resources or sectors were reported.

Of these, forestry and timber (12), climate change (11), followed by agriculture and rural development (9), water (7), biodiversity (5), buildings (5), food (5), population (3), tourism (2), marine environment (2), land and soil (1). Most of them are in line with the resources and sectors mentioned in the Roadmap to a Resource Efficient Europe, which have been used as a starting point for the various national strategies mentioned.

There have been only a few national policies on the sustainable use of natural resources that follow the approach of the Strategy on the Sustainable Use of Natural Resources, according to the European Commission of 2005. In Serbia, the National Strategy for the Use of Resources and Goods -renewable geological, hydrological and biological and natural goods. Serbia's objectives include:

- increasing the efficiency of resource use;
- reducing the impact on the environment in relation to economic production.

Green public procurement (GPP) was mentioned by eight countries. Although GPP does not focus on a particular topic, some countries consider it an important tool for improving the efficiency of material resources, as reflected, for example, in Denmark's National Strategy for Smart Public Procurement and Green Tenders in Ireland.

As part of their material resource efficiency strategies, four countries have reported tools to support the business of small and medium-sized enterprises (SMEs) that aim to integrate the circular economy and effectively address resources in production processes, for example: Business Fund Greens in Denmark, Reffnet in Switzerland and the Reference Center for the Circular Economy in Belgium.

Some countries, including Germany, Italy and Spain, have reportedly implemented regional and local resource efficiency strategies as a complement to national or economic strategies for resource efficiency, as in the case of Belgium and the former member country, the United Kingdom, as a regional response to national strategies.

C. General policy objectives for resource efficiency

The general policy objectives are a statement of intent and an indication of the objectives to be achieved in terms of resource use and efficiency.

With regard to waste and waste management policies, which are the most significant category, the targets have increased for recycling and recovery rates (24), waste prevention (17), promotion of reuse and secondary resources (17), waste efficient (16), efficient construction and buildings (11), reducing the environmental impact of waste (9), enforcing the waste hierarchy (8) and reducing food losses and food waste (8).

The most frequently reported targets for the use of materials: sustainable use of natural resources (14), increased resource efficiency (13), reducing the environmental impact associated with resource use (10), reducing the use of mineral resources (7) and decoupling growth its environmental pressures or waste generation (6).

The specific target of reducing current levels of use was mentioned by only six respondents - Austria, Flanders (Belgium), Hungary, Iceland, Ireland and Poland.

The main objectives of energy policies are - to increase the share of renewable energy (14) and to improve the energy efficiency of the economy or in certain sectors (12).

With regard to the conservation of natural resources, frequently reported policy objectives have been to protect biodiversity (14), sustainable forest management (12), reduce water loss and improve water efficiency (10) and more sustainable land and soil management (7).

In terms of economic objectives, the most common policy objectives were: innovation for resource-efficient production and clean technology (13), sustainable or green growth (12), security of energy and energy supply with raw materials (10), a market for the introduction of innovative solutions and technologies for the efficiency of green resources, services and design (9) and increasing or maintaining competitiveness (8).

In the table we will present examples of the policy objectives that are most frequently reported. (Table 2)

Table 2

The most frequently reported policy objectives for the efficient use of material resources, grouped by theme

Objectives	Ways
Waste and recycling (144)	<ul style="list-style-type: none"> • Increasing recycling and recovery rates (24) • Waste prevention (17) • Promotion of reusable and secondary resources (17) • More efficient waste management (16) • Efficient constructions and alternative building materials (11) • Reducing the impact of waste on the environment (9) • Application of the waste hierarchy (8) • Reduction of food losses and waste (8)
Objectives regarding the use of material resources (64)	<ul style="list-style-type: none"> • Sustainable use of natural resources (14) • Increasing resource efficiency (13) • Reducing the impact on the environment associated with the use of materials (10) • Reducing the use of mineral resources (7)
Efficient energy management and growth the share of renewable energies (54)	<ul style="list-style-type: none"> • Increasing the share of energy from renewable sources (14) • Improving energy efficiency in certain sectors (12) • Reduction of greenhouse gas emissions (8)
Economic considerations - competitiveness and security of supply (54)	<ul style="list-style-type: none"> • Sustainable / green growth (13) • Innovation / efficient production in terms of resource use / clean technology (12) • Ensuring the supply of energy and raw materials (10) • Introducing innovative technologies on the market, technologies for efficient use of resources, services / green design (9) • Increasing competitiveness (8)
Conservation of natural resources (47)	<ul style="list-style-type: none"> • Protecting biodiversity (14) • More sustainable forest management (12) • Reducing water losses / increasing water efficiency (10) • More sustainable land and soil use (7)
Social interests - education and consumption patterns (20)	<ul style="list-style-type: none"> • Improving education / knowledge (7) • Reducing unsustainable consumption patterns (7)

Source: <http://ec.europa.eu/eurostat/statistics>

Note: Only those policy objectives mentioned by at least seven countries are listed in this table. However, they represent almost 80% of the total reported and, as such, are considered to be among the most common priorities.

Overall, the responses show that some countries have a wide range of needs and interests that require continued economic growth, job creation and improved competitiveness, while increasing environmental pressures due to resource-intensive use and continued consumption growth of energy.

It should be borne in mind that, due to overlaps in scope, many objectives cannot be easily separated. Therefore, as a complement to the policy objectives mentioned in the table above (Table 2), we will introduce a new table that will present the relative share of all general policy objectives reported (totals more than 380) (see Table 3).

Table 3

The relative share of the overall policy objectives reported, grouped by main themes
(*)

Nr. crt.	Theme	Quota %
1.	Waste and recycling	38%
2.	Economic considerations - competitiveness and security of supply	14%
3.	Efficient energy management and increasing the share of renewable energies	14%
4.	Nature conservation (biodiversity, forests, water, land, etc.)	12%
5.	Objectives regarding the use of material resources	17%
6.	Social interests - education and consumption patterns	5%

Source: <http://ec.europa.eu/eurostat/statistics>

Note: (*) Details are shown in Table 2

Such groups show that more than a third (38%) of general policy objectives relate to waste management, including recycling, recovery and a circular economy.

Another 17% of the reported targets can be considered as specific to the use of material resources, while 14% refer to economic considerations, and another 14% refer to a better management of energy and increase the share of renewable energies in total energy consumption. Of the reported policy objectives, 12% focused on the conservation of natural resources, such as biodiversity, forests, water, land and marine resources, which are largely outside the scope of material resources.

Social interests were highlighted by the percentage of 5%.

The Republic of Macedonia has been an interesting case in increasing the efficiency of resource use through mechanisms that ensure an integrated approach to economic, social and environmental issues. In Macedonia, the general policy objectives are aimed at the management and protection of natural resources in a broad sense, including biodiversity, air, water, soil, forests and land cover.

Examples of specific objectives include reducing water pollution, air pollution and reducing waste generation, as well as reusing and increasing the amount of recycled waste. Other objectives relate to the protection of natural resources used in agricultural production, including soil and water, increasing forest cover and rehabilitating abandoned agricultural land across the country.

Conclusions

The number of programs and policy initiatives that incorporate material resource efficiency as a key component has increased. This can be attributed, at least in part, to the adoption of the EU Flagship initiative and the Roadmap for a Resource Efficient Europe.

For the development of future policies on the efficiency of material resources and the circular economy we note that:

- Key concepts, including resource efficiency and the scope of material resources, are not clearly defined, either in national or EU policies.

Highlighting such a vague scope creates a barrier to obtaining a correct assessment of achievements and progress in the efficient use of resources;

- Several countries recommend clarifying definitions, the extent of material resources and resource efficiency in order to develop more coherent responses.

It is important to note that the co-economic and environmental benefits of increasing resource efficiency and material closure loops are explicitly recognized in national approaches. The resource use agenda highlights that concerns are currently evolving towards an integrated, sustainable and economic development model.

Countries are invited and encouraged to develop resource efficiency strategies. With such a vague scope, it is difficult to make an in-depth assessment of progress towards resource efficiency targets.

One option, based on the examples from Switzerland and Denmark, could be to focus on resource efficiency in specific economic sectors or industries, where measurements and indicators can provide guidance and a significant impulse for policy development.

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