

DEVELOPING A RESOURCE PRODUCTIVITY TARGET FOR ENGLAND

DECEMBER 2022

ABOUT IEMA

IEMA is the membership body for environment and sustainability professionals. IEMA's growing membership of over 19,500 professionals work at the interface between organisations, the environment and society in a range of critical roles (for example from sustainability directors through to climate change leads and in consultancy and advisory roles). We also work with a range of corporate partners, universities, FE colleges and training providers. IEMA members are active across all sectors of the economy, for example in construction, manufacturing, logistics, facilities management, financial services, retail, food, consultancy and the public sector.

Further Information

For more information from IEMA's policy team please contact:

Adam Batchelor, Policy and Engagement Lead, IEMA – policy@iema.net

EXECUTIVE SUMMARY

This paper puts forward several recommendations for government concerning the development of a resource productivity target for England.

The Environment Act 2021 requires the government to set at least one long-term target in four main environmental areas – air, water, biodiversity, and resource efficiency and waste reduction. These long-term targets are planned to support the delivery of other government priorities, including the Resources and Waste Strategy and the 25 Year Environment Plan, where commitments to double resource productivity by 2030 have been made.

IEMA submitted a full response to the consultation that the government ran on the targets, which can be read [here](#). Government has also now (December 2022) announced the level at which each target will be set.¹ For example, reducing residual waste (excluding major mineral wastes) kg per capita by 50% by 2042 from 2019 levels.

Within the resource efficiency area, the government has separately committed to developing a specific target for resource productivity; inviting contributions and insights in order to do so.

¹ Defra (2022) Environment Act 2021: environmental targets.
[Environment Act 2021: environmental targets - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/publications/environment-act-2021-environmental-targets)

To support the development of this target in ways that contribute to a healthy economy, IEMA engaged its members through webinars and workshops to capture the views and recommendations that are put forward in this paper.

In order for the government to create a robust resource productivity target, IEMA recommends the following:

- Instead of evaluating resource efficiency directly by calculation of the ratio of input to output, alternative methods focusing on entire and extended lifecycle of products, from resource extraction to end-of-life treatment, is essential ².
- The government should focus efforts on achieving decoupling of resource use from GDP and this should be consumption based, not solely production based, to keep us on track to meet the global climate and biodiversity challenges.
- A resource productivity target should be underpinned with the principles of green growth to enable the transition to a low-carbon circular economy, the availability of sustainable materials and increasing resource efficiency and the well-being of the population.
- The government explores alternative indicators that cover Pigouvian tax, Environmentally Adjusted Multifactor Productivity Coefficient and an Index of Product Resource Efficiency to improve resource security and reduce negative externalities for key materials or sectors.

INTRODUCTION

The way we use and dispose of materials and products is not sustainable and is a root cause of environmental degradation, climate change and biodiversity decline. The ‘throughput economy’ (take, make, use, dispose) is no longer viable – instead we can use circular practices to achieve greater resource efficiency with the highest sustainable outcomes.

A circular economy aims to get much more from less, by:

- extending the lifecycle of objects (supported by value-adding services for reselling, repair, refurbishment and remanufacture)
- improving the utilisation of under-used assets and equipment (including renting, sharing, pay-per use and subscription models)
- creating efficient and effective systems to recover products, components and materials at the end of use, so they can be returned to the system with the minimum of intervention and cost.

² Juntao and Mishima (2017) Development of Resource Efficiency Index for Electrical and Electronic Equipment.
https://www.researchgate.net/publication/316324353_Development_of_Resource_Efficiency_Index_for_Electrical_and_Electronic_Equipment

The circular economy model enables a more sustainable approach to how we live, work and travel. Decoupling the provisions of goods and services from the consumption of finite resources; reducing the impact on climate change and biodiversity loss; providing affordable, high-quality products, equipment and infrastructure. Transitioning away from a 'take-make-use-dispose' approach helps create more value from materials and products throughout their lifecycle, enabling more resource-secure, resilient and profitable business outcomes.

The UK measures resource productivity in terms of the contribution of raw material consumption to Gross Domestic Product (GDP). However, while this metric encourages resource-efficiency, it ignores the 'productivity' of the products themselves. By focusing instead on the value created over the entire lifecycle of an object (for example, through the provision of maintenance, repair and remanufacturing, or by improving product utilisation through short-term rental options), businesses can be encouraged to radically improve their profit (and in turn, GDP) while substantially reducing resource consumption.

In this paper, IEMA puts forward some alternative considerations for measurements, and suggests that resource productivity metrics must help address the climate emergency, in a way that recognises the limits of the planet's resources (and the UK's ability to access these), in addition to conserving, protecting and regenerating the living systems we depend on.

LIMITATIONS OF THE GDP APPROACH ON MEASURING PRODUCTIVITY

The government is proposing a future target for resource productivity in England based on the economic value per unit of raw material use, measured using an environmentally-extended multi-regional input-output approach.

GDP measures economic value created by people in the economy, mostly through provision of goods and services. GDP does not recognise the ecological limits of our environment, assuming natural capital to be 'free' and 'infinite', and therefore does not reveal the risks associated with resource exploitation and impact on natural capital.

Rather than measuring resource efficiency directly as the ratio of input to output (effectively 'materials productivity') alternative methods focusing on evaluating the whole lifecycle time of products, from resource extraction to end-of-life treatment, is essential³.

³ Juntao and Mishima (2017) Development of Resource Efficiency Index for Electrical and Electronic Equipment.
https://www.researchgate.net/publication/316324353_Development_of_Resource_Efficiency_Index_for_Electrical_and_Electronic_Equipment

DECOUPLING OF GDP FROM RESOURCE USE

Evidence shows⁴ that strategies to decouple economic growth from resource use have not been successful to date. Some countries have achieved a weak relative decoupling, but this has only been when the focus is on production not consumption. This suggests that strategies, policies and targets have not been ambitious enough and that a stronger approach is needed.

A future-fit economic strategy means focusing all efforts on achieving absolute decoupling of resource use from GDP and this should be consumption based, not solely production based, to keep us on track to meet the global climate and biodiversity challenges.

Resource use is transboundary and in the absence of strong international and aligned regulation, the government should ensure policies and interventions to increase the circularity of resource use also complement our international trade and investment. Here, there are opportunities to encourage a move away from Critical Raw Materials, helping businesses focus on reduction or substitution of those materials at risk from protectionism, climate disruption, over-demand and so on.

ALTERNATIVE APPROACHES

One approach to achieve greater resource efficiency is to establish a common and understandable index that can evaluate the resource efficiency of a product easily and comprehensively⁵. An Index of Product Resource Efficiency measures the whole lifetime of a product from resource extraction to end-of-life treatment. Setting a target that uses an index of product resource efficiency could boost the circular economy and achieve greater resource efficiency.

Another approach is an Environmentally Adjusted Multifactor Productivity Coefficient. Taking into account the role of the development of natural investment and the reduction of excess production (environmentally adjusted production). Allowing for environmental adjustments, it offers a framework for assessing positive and negative effects on the environment when measuring productivity.

The Pigouvian tax is an indicator that taxes any assets in the market that generates negative external effects. By setting the social value of negative external factors, the tax can correct the market failure causing the negative impacts⁶. Using such an indicator in the development of England's resource productivity target would allow for the identification of where 'compensation' is needed beyond where GDP recognises the need, for example the environment, climate change and social well-being.

⁴ Haberl et al (2020) A systematic review of the evidence on decoupling of GDP, resource use and GHG emissions, part II: synthesizing the insights. [A systematic review of the evidence on decoupling of GDP, resource use and GHG emissions, part II: synthesizing the insights \(iop.org\)](#)

⁵ Juntao and Mishima (2017) Development of Resource Efficiency Index for Electrical and Electronic Equipment. https://www.researchgate.net/publication/316324353_Development_of_Resource_Efficiency_Index_for_Electrical_and_Electronic_Equipment

⁶ Mikhno et al (2021) Green Economy in Sustainable development and improvement of resource efficiency. [\[PDF\] Green Economy in Sustainable Development and Improvement of Resource Efficiency | Semantic Scholar](#)

A GREEN GROWTH FRAMEWORK

The green economy aims to reduce environmental risks in the process of economic growth and is a main vector for sustainable development. A resource productivity target should be underpinned with the principles of green growth to enable the transition to a circular economy, low-carbon development, the availability of sustainable materials and increasing resource efficiency and the well-being of the population. Creating new green jobs through research and development, technology and innovation while reducing environmental risks in the long term.

A green growth framework includes several indicators which will offer solutions to the limitations of the conventional approach to resource productivity; helping to meet environmental improvement objectives. These indicators include: the state of the environment; air pollution; water resources, soils; biodiversity and changes in the quality of human potential; reduction of environmental consequences; stimulates innovation; energy efficiency and social responsibility.

A green growth framework that incorporates elements of Pigouvian tax, Environmentally Adjusted Multifactor Productivity Coefficient and an Index of Product Resource Efficiency will help to develop an environmentally focused approach to setting a resource productivity target. This will support circular activities, achieving resource efficiency and this can be targeted at sectors, materials and products with highly negative environmental impacts.