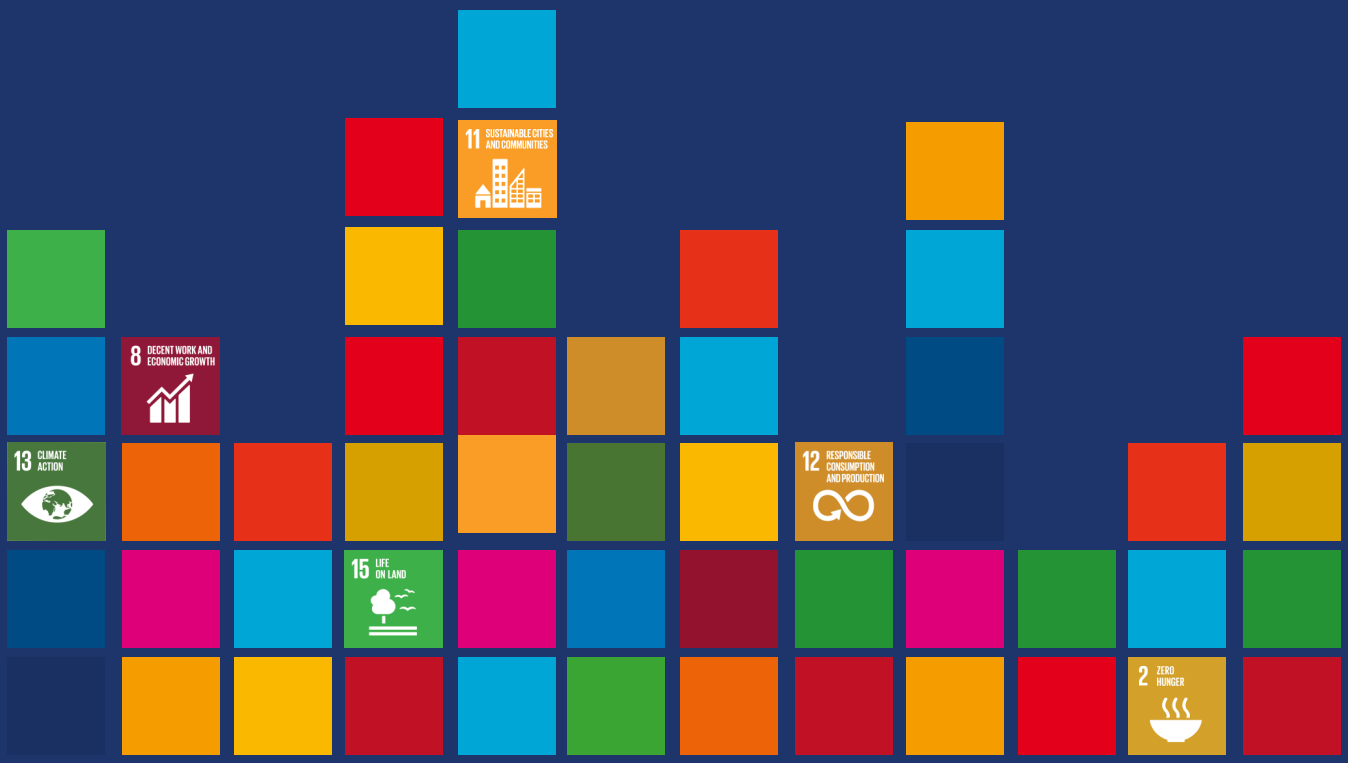
BUILDING RESILIENT SOCIETIES AFTER THE COVID-19 PANDEMIC

Key messages from the International Resource Panel

"The gravity of this pandemic gives us a renewed recognition of the interconnection between societies and nature. To build back better, smarter use of natural resources is key. From the way we generate wealth, to the way we live, move, and eat, we must shift to a new paradigm of resource use that is socially equitable, economically resilient, and environmentally healthy. IRP research proves that it is possible and provides potential paths to follow. We must act now."

Janez Potočnik and Izabella Teixeira
Co-Chairs, International Resource Panel



1. Introduction

The world is experiencing an unprecedented moment in the wake of the COVID-19 pandemic.

For us at the International Resource Panel (IRP) it is also a moment to reflect. This document provides policy recommendations extracted from IRP research over the past 10 years to drive a resource smart recovery, generating socio-economic value while safeguarding the environment.

As expressed by Inger Andersen, the Executive Director of the United Nations Environment Programme (UNEP), "strong and global stewardship of nature and biodiversity; and a clear commitment to "building back better", creating green jobs and facilitating the transition to a carbon neutral future", are key elements for building resilient societies after the COVID-19 pandemic. The Sustainable Development Goals (Agenda 2030) and the Paris Agreement on climate change remain our roadmap.

Taking the leap: Business as usual is no longer an option

A profound social and economic crisis is looming and for most of the world, business as usual does not fit into the new reality. The priority should be keeping all people afloat, including the most vulnerable, while not losing sight of the need to maintain planetary health and sustainable resource management.

The sustainable management of natural resources, including the smarter use of materials (such as biomass, fossil fuels, metal ores and non-metallic minerals) has many benefits:

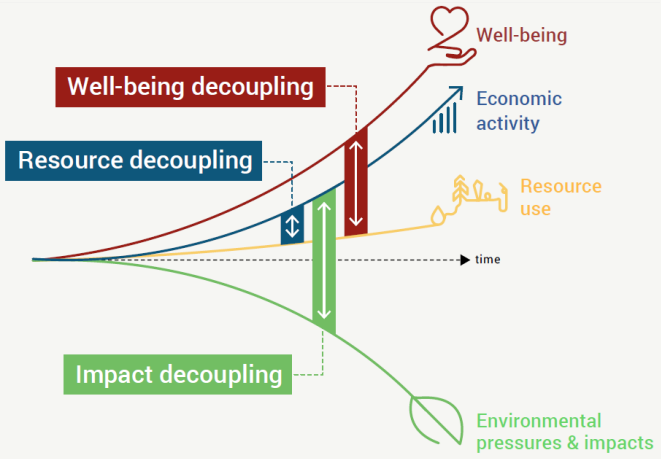
Natural resources ↑
It reduces the rate at which natural resources are depleted.

Economic development ↑
Opportunities include reduced material supply dependencies and economic diversification towards circular economy business models and jobs.

Waste and emissions ↓
Lower levels of inputs help reduce waste flows and emissions and reduce costs for producers and consumers.

Environmental impacts ↓
It limits the environmental impacts that occur with resource extraction in agriculture, forestry, fishing, mining and quarrying.

Furthermore, it stimulates innovation, the creation of new industries, and furthers economic competitiveness. This allows countries with developed infrastructure to leapfrog into schemes of absolute decoupling.



Many global leaders have announced stimulus packages. Biodiversity loss, climate action, and sustainable resource management should be prioritized in the recovery phase. Decisions made by global leaders on deploying these funds will shape our economies and societies for decades to come. Adopting "green" stimulus packages with elements of resource efficiency can lead to cost savings and stimulate economic growth and are the cornerstones of crisis prevention and resilience.

Improvements of **60-80%** in energy and water efficiency are technically possible and commercially viable in sectors such as construction, agriculture, food, industry and transport.

This can deliver cost savings of **2.9-3.7 trillion** USD per year by 2030.

Investing some 900 billion USD could potentially generate **9-25 million** jobs.

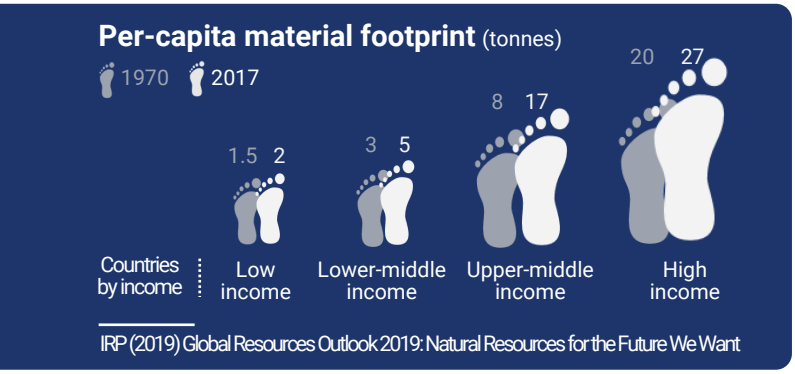
IRP (2017) Assessing Global Resource Use: A systems approach to resource efficiency and pollution reduction

Extraordinary times call for extraordinary measures

> *"Economic policy should meet people's most immediate health, food and other basic needs, protect social cohesion and maintain political and economic stability."*
>
> -António Guterres, United Nations Secretary-General (responding to the COVID-19 pandemic)

Water and material resources are at the center of people's basic needs and are critical elements for a successful response to the global pandemic. We need to ensure the efficient management of these precious resources along their life cycle.

The use of natural resources has more than tripled from 1970, resulting in increasingly negative impacts on the environment and human health. 90 per cent of biodiversity loss and water stress are caused by resource extraction and processing. These same activities contribute to about half of global greenhouse gas emissions.



IRP (2019) Global Resources Outlook 2019: Natural Resources for the Future We Want

Furthermore, the use of these resources and the related benefits and environmental impacts are unevenly distributed across countries and regions. Material footprints in high-income countries are around 27 tons per person; 60% cent higher than the upper-middle income countries in 2017; and more than 13 times the level of the low-income group.

Countries will need to design strategies that enable sustainable supply chains. Close monitoring of material flows through tools like the IRP Global Material Flows Database will be critical for informed decision-making.

Current food systems must become more efficient and more sustainable. There are significant opportunities to decouple food system activities from environmental degradation along the value chain, starting with better use of land and minerals during the production process to minimizing waste.

A successful recovery from this global pandemic will be one that brings a new era of social and economic prosperity for all within the planet's natural capacities to perform. A new relationship with nature and an efficient use of our natural resources will be key to this success.

2. Re-thinking the way we generate wealth

2.1. Inclusive and sustainable economic growth

IRP modelling shows that by 2060, with the right resource efficiency and sustainable consumption and production policies in place:

- Growth in global resource use can slow by **25%**
- Global GDP could grow by **8%** - especially for low- and middle-income nations
- Global greenhouse gas emissions can be cut by **90%**

...as compared with projections for continuing along historical trends.

Such projections are based on the understanding that growth rates in emerging and other developing economies must be balanced by absolute reductions in resource use in developed countries.

IRP (2019) Global Resources Outlook 2019: Natural Resources for the Future We Want

POLICY EXAMPLES

- EC's Circular Economy Strategy – areas of action include production (e.g. product design), consumption (e.g. labelling), waste management (targets for recycling and landfill), and markets for secondary materials.
- China's "Circular Economy Promotion Law"
- India's Unnat Jyoti by Affordable LEDs for All
- Japan's sound material-cycle society policy sets out five steps: reduce, reuse, recycle, energy recovery and final disposal.
- Resource efficiency policies (pricing of externalities, taxes, incentives). Examples: UK landfill tax.

IRP (2019) Global Resources Outlook 2019: Natural Resources for the Future We Want

2.2. Minerals and metals

POLICY RECOMMENDATIONS

At the national level, governments have a critical role to play, including:

- devising concession agreements that ensure companies operate responsibly;
- domesticating natural capital accounting;
- incorporating social and environmental assessments in national and local development plans;
- ensuring transparency and accountability; and
- channeling extractive rents into national and local public investment.

At the international level, policy action is needed in several areas including:

- agreeing on international standards (e.g. transparency, global codes of conduct)
- regulating financial markets to combat commodity price volatility and tackle illicit financial flows;
- promoting end-of-life recycling for metals – including specialty and rare earth metals that are rarely recycled (often below 1%) – through recycling-friendly product design, investment in research and development, and suitable legal frameworks.

IRP (2020) Mineral Resource Governance in the 21st Century: Gearing extractive industries towards sustainable development
UNEP (2013) Metal Recycling: Opportunities, Limits, Infrastructure
UNEP (2011) Recycling rates of metals

The annual extraction of metals and non-metallic minerals has significantly increased.

11.6 billion tonnes (1970) → **53.1 billion** tonnes (2017)

The mining and refining of these in 2017 account for:

- **20%** of climate change impacts
- **20%** of particulate matter health impacts
- **4%** of water stress
- **2%** of land-use related biodiversity loss

As ore grades decline, their mining will lead to ever larger amounts of waste being generated and energy and water used.

IRP (2020) Mineral Resource Governance in the 21st Century: Gearing extractive industries towards sustainable development

2.3. Opportunities in the Circular Economy: remanufacturing as an example

Value-retention processes (VRPs) extend products' lives through:

Reuse | Repair | Refurbishment | Remanufacturing

The IRP looked at three industrial sectors (industrial digital printers, vehicle parts, and heavy-duty and off-road equipment parts) in the United States, China, Brazil and Germany. It found that extending the life of products through VRPs could:

- Reduce raw materials by **80-99%**
- Decrease GHG emissions in some sectors by **79-99%**
- Generate green jobs, reduce costs, and stimulate innovation

IRP (2018) Re-defining Value – The Manufacturing Revolution. Remanufacturing, Refurbishment, Repair and Direct Reuse in the Circular Economy

POLICY RECOMMENDATIONS

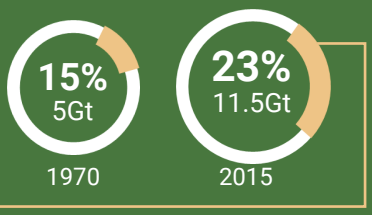
- Eliminate regulatory barriers that impede and/or prohibit the movement of VRP products within and between countries.
- Streamline VRP definitions across different countries, particularly with trade policies and trade agreements.
- Invest in accelerated VRP adoption and capacity by providing funding to VRP producers from R&D, capital acquisitions and workforce training.
- Implement customer education and awareness campaigns to encourage acceptance of VRP products and to strengthen the business-case for VRP producers.
- For non-industrialized countries, in the short-term, focus on 'closing-the-loop', identify access and regulatory barriers to VRPs that may unintentionally exist due to related policy priorities (e.g. consumer protection, anti-dumping, and domestic trade). In the longer-term, focus on expanding VRP production capacity via knowledge and technology transfer, and training programmes to increase skilled labor supply.

IRP (2018) Re-defining Value – The Manufacturing Revolution. Remanufacturing, Refurbishment, Repair and Direct Reuse in the Circular Economy

3. Re-thinking the way we move and live

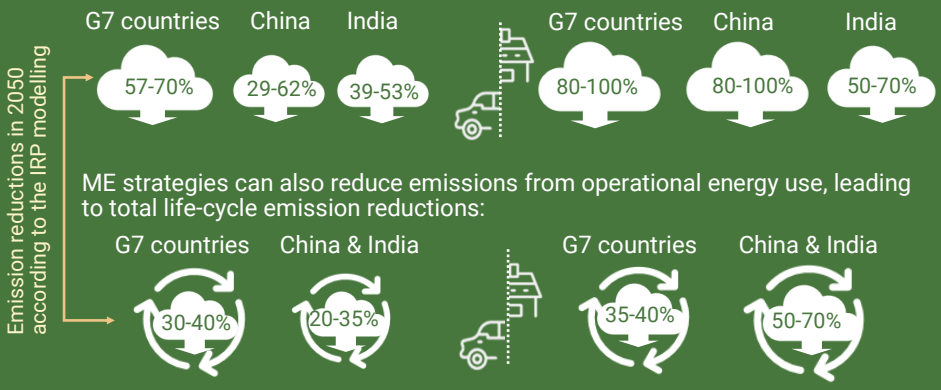
3.1. Material-efficient vehicles and housing for a low-carbon future

Emissions from the production of materials as a share of global total increased.



80% Were related to materials used in construction and manufactured goods, especially homes and cars.

Material efficiency (ME) strategies can deliver significant reductions of emissions in the material cycle of passenger cars and residential buildings:



IRP (2020) Resource Efficiency and Climate Change: Material Efficiency Strategies for a Low-Carbon Future

POLICY EXAMPLES Top three ME strategies ranked by emission saving potential according to the IRP modelling.

	ME Strategy	Potential policy options
1	Ride sharing	✓ Promoting high occupancy vehicle (HOV) lanes
2	Car sharing	✓ Favorable treatment in parking, zoning, and building codes.
3	Shifting towards trip-appropriate smaller vehicles	✓ Extending fuel economy policy ✓ Tax on CO_2 intensity

IRP (2020) Resource Efficiency and Climate Change: Material Efficiency Strategies for a Low-Carbon Future

	ME Strategy	Potential policy options
1	More intensive use of homes (e.g. increased household size/co-housing, more efficiently designed residential units)	✓ Reduction of transaction costs and taxes on home sales ✓ Relaxation of single-family zoning ✓ Revision of laws restricting accessory dwelling units and infill development
2	Enhanced end of life reuse of components and recycling of materials; Fabrication yield improvement	✓ Landfill bans ✓ Encouraging prefabrication ✓ Encouraging building information modeling (BIM) ✓ Reduction of virgin materials subsidies
3	Material substitution	✓ Revision of building and fire codes with respect to mass timber wood framing ✓ Standards allowing cement with clinker substitutes ✓ Revision of building codes to address embodied impact of materials

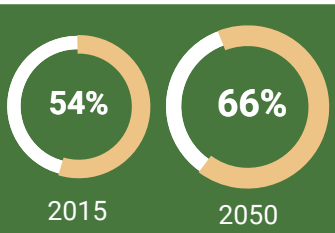
3.2. Resilient and resource-efficient cities

POLICY RECOMMENDATIONS

- Build urban infrastructures that consider long-term flows of strategic resources.
- Invest in a shift of urban metabolism (i.e., the flow of resources through a city) from linear to circular, to assist planning at the local government level.
- Support from higher levels of government for city-level innovation for resource efficiency.
- In rapidly expanding urban areas, enhance the role of city planners to deliver high density, mixed-use and resource-efficient settlements, well connected by multi-mode and low-carbon transport systems.

IRP (2018) The Weight of Cities: Resource Requirements of Future Urbanization
UNEP (2017) Resource Efficiency: Potential and Economic Implications

The proportion of the global population living in cities and towns is expected to rise. Most of this transition will take place in Asia and Africa, and will require a significant expansion of existing cities, as well as the construction of new cities.



IRP (2018) The Weight of Cities: Resource Requirements of Future Urbanization

Example—Mexico

"Green mortgages" in Mexico for houses built with energy-saving materials and using eco-efficient technologies for improved service quality of water, electricity and gas

Example—Germany

Vauban: eco-city development in Germany. All housing designed to a high efficiency standard; area designed to enable sustainable transport and actively encourage walking and cycling

4. Re-thinking the way we eat

4.1. Resource-smart food systems

POLICY RECOMMENDATIONS

- Create adequate legal frameworks to secure property rights and land tenure and regulate access to and use of water, biodiversity, and ecosystems services.
- Investing in new farming technologies (e.g. drip irrigation, 'low till and precision agriculture') and resilient varieties increase productivity and lower water use.
- Advance farm and decision-making related innovations (e.g. use of mobile technology for price and weather-related information to farmers) to reduce on-farm food losses and price volatility.
- Introduce financial incentives for regenerative practices (e.g. payment for ecosystem services) and revisit subsidies and quotas (fossil fuels, biofuels) that lead to inefficiencies, water depletion and land degradation.
- Shift diets towards less meat and animal products from intensive livestock systems.
- Reduce waste by collecting and composting food residues and recycling nutrients as production inputs.

IRP (2019) Global Resources Outlook 2019: Natural Resources for the Future We Want
UNEP (2016) Food Systems and Natural Resources

Food systems are responsible for:

- **60%** of global biodiversity loss on land
- **33%** of degraded soils
- **24%** of the global GHG emissions
- **61%** of the depletion of commercial fish
- **20%** overexploitation of the world's aquifers
- **60%** increase of global food production is needed to feed a future population of 9 billion people
- ***> 820** million people are still hungry

UNEP (2016) Food Systems and Natural Resources
*FAO (2019) The State of Food Security and Nutrition in the World 2019

4.2. Land restoration

Currently, about *25% of the world's ice-free land is degraded.

Both the **process of land restoration and rehabilitation**, and the **restored land**, have tremendous potential to help the world limit climate change and achieve its aims for sustainable development.

*IPCC (2019) Special Report on Climate Change and Land

POLICY RECOMMENDATIONS

- Maximize cost effectiveness by addressing land degradation hierarchically: Avoid, Reduce, Reverse. Avoiding or reducing land degradation is more cost-effective than efforts to reverse past degradation.
- Invest in land restoration and rehabilitation to limit climate change and its impacts.
- Ensure that investments in land restoration use an integrated landscape approach, especially in landscapes with variable land potential.
- Invest in quantitative and qualitative modelling, including scenario development, at local and global scales to guide future investments and to help navigate the complexity of factors that determine the co-benefits of land restoration.

IRP (2019) Land Restoration for Achieving the Sustainable Development Goals
UNEP (2016) Unlocking the Sustainable Potential of Land Resources: Evaluation Systems, Strategies and Tools

The International Resource Panel (IRP) is a science-policy platform created by the United Nations Environment Programme to provide independent, coherent and authoritative scientific assessments on the use of natural resources and their environmental impacts over the full life cycle and contribute to a better understanding of how to decouple economic growth from environmental degradation while enhancing human well being.

For more information, please visit: www.resourcepanel.org
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