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QUICK TIPS

## POLLUTION PREVENTION AND CONTROL: TOWARDS A TOXIC-FREE ENVIRONMENT

The urgency to act on pollution is emphasised by the [EU Zero Pollution Action Plan](#). The plan aims to reduce air, water, and soil pollution to levels that are no longer harmful to human health and natural ecosystems by 2050 and has defined 33 concrete milestones for 2030. It aims to strengthen international partnerships and support neighbouring and developing countries in improving their environmental standards through technical assistance, knowledge sharing, and funding.

Pollution is the largest environmental risk for disease and premature death (9 million annual premature deaths worldwide). The most harmful impacts are typically borne by vulnerable groups. Pollution is also a **major driver of biodiversity loss and ecosystem change** with especially devastating effects on freshwater and marine habitats. Pollutants also accumulate in the food cycle with serious human and animal health consequences.

However, pollution is **largely controllable and often avoidable but considerably neglected**, particularly in the low- and middle-income countries with nearly 92% of global pollution-related deaths<sup>1</sup>. Globally, progress in household air quality and drinking water, often associated with extreme poverty, is offset by opposite negative trends in ambient air and chemical pollution as an unintended consequence of industrialisation and urbanisation.

**The benefits of pollution control far outweigh the costs.** Considering the impact on public health and the environment, pollution-related economic losses are estimated at 6% of global GDP, up to 10% in severely affected countries<sup>1</sup>. Nevertheless, **many low and middle-income countries lack basic information** about location, severity and risks of “pollution hotspots”, making it difficult to prioritize, allocate resources and implement solutions ([UNEP](#)). On the positive side, growing demand for clean goods and services creates business opportunities.

The **EU supports international action** for zero pollution and implementation of the “polluter pays” principle. Pollution is a cross-cutting theme; it is therefore critical to integrate pollution concerns in actions in key sectors detailed below. It encourages partner countries to put in place the right incentives to reduce pollution, notably through the use of green budgeting and environmental taxes. The EU seeks to lead work for an ambitious post-2023 international framework for the sound management of chemicals and waste, enhance actions under the [Basel](#), [Rotterdam](#), [Stockholm](#) and [Minamata](#) Conventions and promote a global agreement on plastics.

This note presents practice-oriented “quick tips” to promote interventions that address pollution and promote its prevention and control through support to external actions.



### Addressing pollution by sector

Pollution control is highly cost-effective. According to the [Lancet Commission on pollution and health](#), **actions taken to control pollution have a high potential to also mitigate the effects of other threats to humanity and nature**, like climate change and biodiversity, thus producing multiple benefits.

<sup>1</sup> [Pollution and health: a progress update - The Lancet Planetary Health](#)

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## Energy<sup>2</sup>

- ▶ Replacing fossil fuels for electricity generation by clean renewable energy sources, i.e. a green energy transition, not only reduces greenhouse gas emissions but also emissions of many types of ambient air pollution such as particulate matter (soot), methane, NO<sub>x</sub>, SO<sub>2</sub>, heavy metals while also reducing water consumption for cooling. Energy efficiency measures such as co-generation of heat and power, smart metering and smart buildings also contribute to reduced emissions.
- ▶ Electrification is an important strategy to reduce air pollution, particularly in urban environment. Examples include electrification of transport or the installation of heat pumps in buildings.
- ▶ Clean cooking reducing the use of biomass or through electrification, improves indoor air quality, reduces deforestation and greenhouse gas emissions, and contributes greatly to the health of people, particularly of women often having a large role in cooking and firewood collection. A quadruple win!

## Transport<sup>3</sup>

The following measures combine (to a larger or lesser extent) the reduction of air pollution with a reduction in greenhouse gas emissions, while having positive health impacts (by improved air quality and more active lifestyle) and in some cases also contributing to biodiversity (through green infrastructure):

- ▶ Implement **best environmental practices (UNEP, 2021)** for construction of transport infrastructure; choose materials that are durable, recyclable, renewable, and low in carbon and energy consumption.
- ▶ Shift to **clean modes of power** including improvement of fuel quality and engine efficiency (diesel/petrol → electricity → green electricity or if economically relevant diesel/petrol → LNG).
- ▶ Prioritise **public transport** with connected green networks for **walking and cycling** in cities.
- ▶ Promote a **modal shift** from road to rail (and possibly water) for clean(er) freight and passenger travel.
- ▶ **Reduce air pollution through regulations and taxation** such as introducing fuel standards (Euro6), development of national fuel economy policies, introduce low emission zone, peak hour taxation, etc.

## Circular Economy<sup>5</sup>

A circular economy intrinsically reduces pollution by preventing/eliminating waste and reducing emissions and material use. It is a system where **materials and products remain in use (at their highest value) for as long as possible**. In other words, the waste management hierarchy of prevention, reduction, reuse, recovery, recycling, removal and finally disposal of wastes does not reach its final stage. Pollution avoidance or reduction measures in a circular economy include:

- ▶ **Supporting the private sector to deploy new business models** that reduce material use and improve resource efficiency: redesign of materials, production processes, products, and services to be less resource intensive, last longer and facilitate avoidance of waste and emissions.
- ▶ **Supporting collaboration among SMEs** and/or among SMEs and large business organisations to create synergies among industries of different sectors, apply industrial symbiosis or develop eco-industrial parks.
- ▶ Supporting the public and private sector to introduce systemic changes in production and consumption processes, including **recapture of 'waste'** as a resource to manufacture new materials and products, shared economy business models, and provide fiscal and financial incentives for cleaner consumption and production, for example, through green procurement.
- ▶ Investments in waste management facilities that turn unavoidable waste into a resource, for example by recycling metal, plastic, etc, capturing of methane gas from organic waste (**biogas**) emitted from sanitary landfills<sup>6</sup> as an alternative to waste incineration<sup>7</sup>.

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<sup>2</sup> See [Quick tips](#): Integrating environment and climate change into the energy sector

<sup>3</sup> See [Quick tips](#): Green mobility: Anchoring environment and climate ambitions in the transport and mobility sector

<sup>4</sup> [GFEL | Global Fuel Economy Initiative](#) (EU funded UNEP from 2015 to 2023)

<sup>5</sup> See [Switch2Green facility](#) tools page

<sup>6</sup> Sanitary landfills are not dumps; they are facilities carefully designed to control leachate and methane and minimize the risk of land pollution from solid-waste disposal.

<sup>7</sup> Incineration is to be considered as a last resort measure. It does recover energy from waste but destroys potentially valuable materials. Moreover, incineration facilities create a perverse incentive against further treatment of residual waste and require state of the art technologies, strict pollution control measures and robust maintenance schedules to avoid the release of hazardous substances.

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## Water<sup>8</sup>

The majority of our investments aim at providing clean water and managing wastewater. This offers opportunities to implement measures to avoid or reduce pollution, with multiple benefits, including:

- ▶ **Systematically promoting water use efficiency** to reduce the amount of water used, and to reduce the amount of wastewater generated, with cost savings on treatment.
- ▶ Reduce the use of hazardous materials to **reduce the load of pollutants** requiring treatment.
- ▶ Making **water suitable for reuse** by wastewater treatment prior to discharge (as a source of drinking water, recreation, irrigation, navigation, and other).
- ▶ **Sewage treatment** sludge can be used to produce biogas avoiding the release of greenhouse gases and creating additional energy supply; the remaining spoil can, depending on possible remaining pollutants, be treated and used for soil improvement or construction purposes (bricks).
- ▶ **Avoid over-irrigation** and construct proper drainage facilities to reduce soil salinisation and degradation.
- ▶ **Use nature-based solution** for water storage (climate adaptation!) and quality improvement (e.g. wetlands for trapping of nutrients, heavy metals and sediments, for example as cost-effective pre-treatment in public water supply schemes).

## Urban Development<sup>9</sup>

All of the above measures can be implemented in an urban planning and development context, having direct or indirect benefits such as on air quality, climate change mitigation, human health, increased real estate value.

- ▶ Encourage **sustainable transport options and active lifestyle**. Invest in public transport, promote cycling and walking infrastructure, incentivize the use of electric vehicles (charging infrastructure), and promote carpooling and ride-sharing initiatives.
- ▶ Enhance **industrial emission controls** and enhance environmental monitoring and enforcement of emission standards to ensure compliance.
- ▶ Promote **sustainable construction practices**. Use the 'construction hierarchy' to prioritise approaches to cut embodied emissions: (i) promote the use of existing assets (building repurposing), (ii) material efficiency and low-carbon alternatives, (iii) plan, design and build for the future (including buildings that minimize warming or cooling needs), (iv) clean and safe construction sites<sup>10</sup>.

<sup>8</sup> See: [Quick Tips](#): "Integrating the Environment and Climate Change in Water Resources Management" and "Integrating the Environment and Climate Change in Water-Sanitation and Hygiene (WASH)"

<sup>9</sup> See: [Quick Tips](#) for Green Cities: Integrating Environment and Climate Change Ambitions in Urban Development

<sup>10</sup> See: C40 - [How to reduce embodied emissions in municipal construction and lead by example](#)

- ▶ Focus urban planning on green and compact cities; introduce nature-based solutions for cooling, wastewater treatment and other urban functions and services; green spaces act as natural air filters, counteract urban heat stress and create a healthier urban environment.
- ▶ Strengthen waste prevention and management including reuse, recovery and recycling programs, waste segregation, and (as a last resort) controlled waste disposal facilities. Encourage composting and reduce single-use plastics.

### Agriculture and food production <sup>11</sup>

The [Farm to Fork Strategy](#) and the [Biodiversity Strategy](#) address the need to reduce the use of pesticides, anti-microbials and fertilisers in agriculture, increase the share of organic agroecology and farming and to enhance the share of landscape elements set aside for nature. Approaches to reduce pollution in agriculture include:

- ▶ **Integrated nutrient management:** the use of compost, organic manure and nitrogen-fixing crops allows for the reduction or elimination of the use of chemical fertilisers and the related pollution.
- ▶ **Integrated pest management** to decrease long-term incidence of pests and reduce environmental and health hazards caused by the use of pesticides.
- ▶ **Precision farming** utilising data on moisture, temperature, humidity and other parameters to guarantee precise dosed inputs for crops, thus optimising resource use and avoiding soil oversaturation with nutrients, toxins or water <sup>12</sup>.
- ▶ **Better land use** by favouring crop rotation and fallowing (and not monocultures) which conserves nutrients from one season to the next, while life cycles of insect pests, diseases and weeds are interrupted thus enhancing crop yield stability; by contour planting (reeds, shrubs, etc.) to prevent run-off and favour biological control agents; by preventing fire and reducing fire-based approaches (also to avoid air pollution), and many more.
- ▶ **Waste prevention and management** including processing and disposal of manure and other waste products from agri-food value chains, as well as recycling and reusing wherever possible (including composting and anaerobic waste digestion to produce biogas).
- ▶ **More plants, less animals:** less livestock and a more plant-focused diet reduces loss of food crops, cuts greenhouse gas emissions, and leads to better health of people. Consumer behaviour obviously plays a dominant role here.



### Addressing pollution in investments

- ▶ When **screening investment pipelines**, favour projects that contribute to the EU Zero Pollution Action Plan or look for opportunities to proactively integrate elements of this plan into the proposed projects.
- ▶ When providing **support to investments**, verify if **the Environmental and Social (E&S) Management System** of the lead financial institution includes a safeguard on pollution prevention. Such safeguard usually requires a risk assessment which may lead to further evaluations.
- ▶ When an **Environmental and Social Impact Assessment (ESIA)** is required, ensure adequate attention is given to pollution prevention and control. The mitigation hierarchy should be applied, putting priority on avoiding impacts over mitigation or compensation (do no significant harm), and where possible include measures to reduce already existing pollution (do good).
- ▶ The **Environmental and Social Management Plan (ESMP, part of the ESIA)** can promote the use of **Best Available Technology (BAT)** or emerging techniques for, inter alia, preventing or reducing emissions, waste, use of raw materials and noise, and restoration of the site upon closure ([EU waste directive](#)).
- ▶ Nonpoint or diffuse emissions cannot be linked to an individual activity, but are associated to a specific sector (such as transport or energy). Only sector-broad measure can address this type of pollution. Apply **Strategic Environmental Assessment (SEA)** for sector policies, plans and programmes to get a clear view of their consequences and the effectiveness of measures to avoid or reduce diffuse emissions.

<sup>11</sup> See [Quick tips](#): Integrating climate change and the environment in the agriculture and food systems; also: Quick Tips: [Working with Nature in Agriculture and Livestock](#)

<sup>12</sup> See [Quick tips](#): Integrating the environment and climate change in and by digitalisation



## Addressing pollution through green financial instruments

The European-led [International Platform on Sustainable Finance](#) and other players are progressively framing regulation and practice of banks. Partner financial institutions can be asked:

- ▶ How are financial institutions aligned with the European Sustainable Finance Strategy, notably and where relevant: (i) the [EU Taxonomy on Sustainable Finance](#)<sup>13</sup>, (ii) the [SFDR](#) and [CSRD](#) Disclosure Regulations, (iii) the [Green Bonds Standard](#), and (iv) the voluntary [Environment, Social and Governance \(ESG\)](#) strategies in the private sector? How is this reflected in the investment or pipeline?
- ▶ Have partner financial institutions take into consideration the Nationally Determined Contributions (NDC) and National Biodiversity Strategies and Action Plans (NBSAP) of the targeted partner countries, as well as potential national Taxonomies, to make sure the investments are aligned with the [Paris Climate Agreement](#) and [Global Biodiversity Framework](#).
- ▶ Develop innovative financing instruments, mainstreaming green priorities, such as for example in emerging Blue bonds aimed at reducing pollution in aquatic ecosystems. When investing in such fund, ask for clear pollution reduction metrics in the impact monitoring plan or in the Bonds notice. This allows for annual follow-up monitoring on the disclosure (Impact report of Funds or Use-of-Proceeds annual reports of Bonds).
- ▶ With respect to public finance the Commission encourages partner countries to put in place incentives to reduce pollution through the use of green budgeting and environmental taxes.

### Solid waste: plastics getting out of control

- ▶ Currently, the world produces 430 million metric tons of plastics each year (OECD, 2022), of which over two-thirds are short-lived products. Virtually all plastics come from land and ultimately end up in the oceans through wind and rain, run-off, floods, accidents, etc<sup>14</sup>. Without meaningful action the amount of plastic waste is projected to nearly triple by 2040, with largest increase in Africa. Global plastic recycling presently stands at less than 10 per cent.
- ▶ Marine plastics have direct effects on tourism, fisheries and aquaculture, and on sea life (e.g. entanglement of animals). By 2040 plastic in the oceans could represent a US\$ 100 billion annual financial risk for businesses if governments require them to cover waste management costs, on a 2020 global plastic market of around US\$ 580 billion. The monetary value of marine natural capital losses is estimated at US\$ 2,500 billion per year.

<sup>14</sup> Bits of plastic particles were recently discovered in clouds above eastern China with new research showing that these microplastics could influence cloud formation and the weather. [The Guardian 16-11-2023](#).

<sup>13</sup> For more detail see [Annex III of \(EU\) 2023/2486 of 27 June 2023: Technical screening criteria](#).

- ▶ Plastics slowly<sup>15</sup> break down into [microplastics](#) (< 5 mm) and nanoplastics (< 0.001 mm) which can be ingested by living organisms, thus entering the food chain and entering the human body through contaminated food. They accumulate in organs including the placenta. A variety of chronic diseases may be related to microplastics exposure (Environment & Health, 2023). Substances leaching out from plastics are known to influence the hormone balance in animals and humans. Plastics labelled as biodegradable may take years to degrade, thus presenting similar risks as conventional plastics.
- ▶ In 2022, all 193 UN Member States in the [Global Plastics Treaty](#) decided to end plastic pollution, with negotiations on a binding legal agreement underway (scheduled for 2024). While many technical solutions for a circular plastics economy are known, the economic, fiscal and business models to address the associated impacts while also safeguarding livelihoods are less clear.
- ▶ Solution scenarios combine reducing the most problematic and unnecessary plastic uses with a market transformation towards circularity in plastics by accelerating three key shifts - **Reuse** (from throwaway single-use to reuse), **Recycle** (make it a profitable and stable market), and **Reorient and Diversify** (sustainable plastic alternatives) – and actions to deal with the plastic pollution legacy<sup>16</sup>.
- ▶ By 2040, UNEP (2023) estimated a new plastics economy could create 700,000 additional jobs, reduce damage to human health and the environment, prevent 0.5 Gt CO<sub>2</sub>-eq GHG emissions annually, reduce liabilities, risks and litigation and thus save over € 4 trillion.



## Further information and support

- ▶ [Quick Tips to integrate environment and climate change into key sectors.](#)
- ▶ UNEP (2023). [Turning off the Tap. How the world can end plastic pollution and create a circular economy.](#)
- ▶ Environment & Health (2023): [Potential Health Impact of Microplastics: A Review of Distribution, Human Exposure, and Toxic Effects.](#)
- ▶ UNEP 2023: [Five drivers of the nature crisis.](#)
- ▶ EIB (2022). [Environmental and Social Standards.](#)
- ▶ WHO (2022). [Household air pollution.](#)
- ▶ The [Lancet Commission on Pollution and Health](#) (2022, 2017)
- ▶ UNEP (2021). [From Pollution to Solution. A Global Assessment of Marine Litter and Plastic Pollution](#)
- ▶ EU Action Plan (2021): [Towards a Zero Pollution for Air, Water and Soil.](#)
- ▶ Institute for European Environmental Policy & Barcelona Institute for Global Health (2020): [Mental health and the environment: How European policies can better reflect environmental degradation's impact on people's mental health and well-being.](#)
- ▶ UNEP (2017): [Towards a pollution-free planet](#)

Additional support is available through the [Green Deal Knowledge Hub](#), notably the Greening Facility and the Switch to Green Facility.

Contact INTPA and NEAR Environment & Climate Change Mainstreaming Facility:

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<sup>15</sup> It is very slow: Over half of plastics floating in ocean gyres (circular currents) are produced before year 2000.

<sup>16</sup> Solutions include circularity policies; phasing out of unnecessary, avoidable and problematic products; taxes, fees and charges; deposit-refund schemes; producer responsibility schemes; tradeable permits; removal of harmful subsidies; green chemistry for safer alternative polymers and additives; change consumer attitudes; and "closing the tap" in regard to virgin plastic production through ecodesign for product reuse.