

# PERFORMANCE STANDARD 3: RESOURCE EFFICIENCY AND POLLUTION PREVENTION OVERVIEW



*Creating Markets, Creating Opportunities*

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# Overview of PS3: Scope of Application



## Resource Efficiency

Energy consumption  
Water consumption



## Greenhouse Gases



## Pollution Prevention

Wastes  
Hazardous materials management  
Pesticide use and management  
Others: noise, odors, vibration...

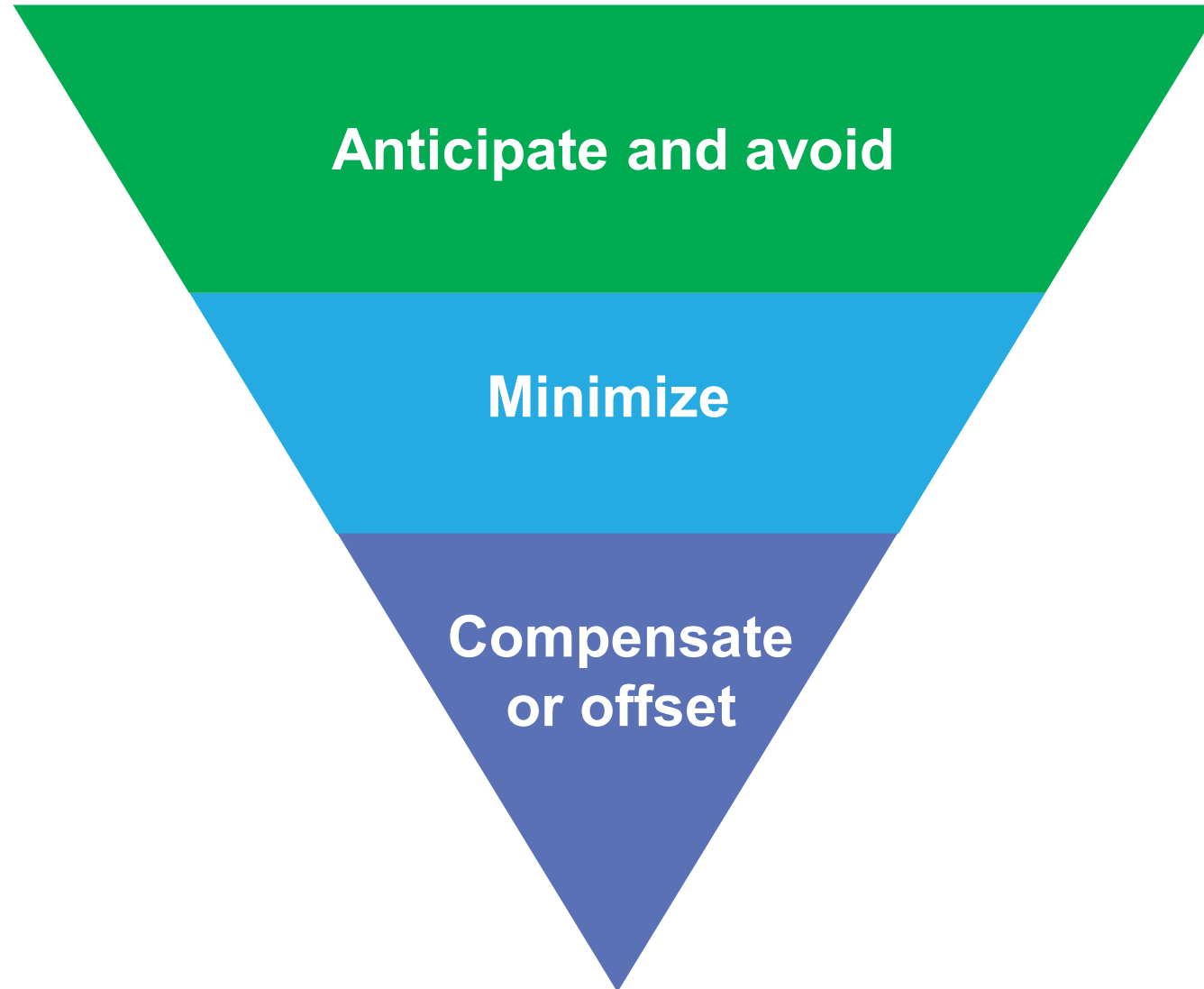


# PS3 Objectives

- Avoid or minimize impacts to human health and the environment by avoiding or minimizing project-related pollution.
- Promote more sustainable use of resources: including energy and water.
- Reduce project-related greenhouse gas (GHG) emissions.



# Risk Mitigation Hierarchy



# Overview of PS3: Overarching Principles

***Avoid**, or where avoidance is not possible, **minimize** adverse impacts on human health and the environment.*

Mitigation consistent with good international industry practice (GIIP).

Apply technically and financially feasible principles and techniques.

Achieve the most stringent of either host country regulations or EHS Guidelines.

Consider the **project life-cycle** and potential future expansions

Consider existing ambient conditions and impacts, communities, and sensitive receptors

***The design of PS3 compliance must take account of WBG and other GIIP and country specific regulatory standards.***

# GIIP (*not BAT!*) in the PS3 Context

GIIP is *not* BAT (Best Available Technology)

**GIIP:** exercise of professional skill, diligence, prudence, and foresight ... so that the project employs the most appropriate technology in the project-specific circumstances.

**Technical Feasibility:** proposed measures and actions can be implemented with available skills, equipment, and materials, considering local factors.

**Financial Feasibility:** commercial considerations. Incremental cost of adopting measures and actions compared to the project's investment, operating, and maintenance costs.



# The WBG EHS Guidelines

Technical reference documents:

- One General EHS Guidelines
- 62 EHS Sector Guidelines

Performance levels and measures considered generally acceptable by the WBG



Sector-specific examples of Good International Industry Practice (GIIP)

Available in [English](#) | [Français](#) | [Español](#) | [русский](#) | [简体中文](#) | [عربي](#) | [Tiếng Việt](#)

[www.ifc.org/ehsguidelines](http://www.ifc.org/ehsguidelines)

# Resource Efficiency



## Resource Efficiency

Energy consumption  
Water consumption

- Cover all resources used such as energy, water, fuels, and other resources and material inputs.
- Implement technically and financially feasible and cost-effective measures to reduce consumption and improve efficiency in core business activities
- Integrate principles of cleaner production into design and processes
- Benchmark when possible: consider management and monitoring (e.g., KPIs)



# Resource Efficiency: Water Consumption

- For projects that are potentially significant consumers of water:
  - Adopt measures to avoid or reduce water usage.
  - Ensure no significant adverse impacts on others.
  - Options to use technically feasible water conservation measures, alternative water supplies, water consumption offsets, or alternative location of project.
- Project must follow GIIP:
  - Refer to the WBG EHS Guidelines for benchmarks.



# Resource Efficiency: Issues/Tips



- Tendency to focus only on energy (electricity) consumption and conservation → holistically include all resources (fuels, water, materials).
- Tendency to not consider “*avoidance*” e.g., use of resources → ESIA should cover options to avoid use of resources, especially for resource intensive sectors.
- Assessment of alternatives should be realistic and comprehensive and include sources of water/energy/raw materials.
- Resources baseline assessment is not adequately covered early enough.
- Consider adverse impacts on others (competing users of resources, e.g., farmers, communities, other industries).
- Benchmark is not properly identified or used (wrong comparisons).

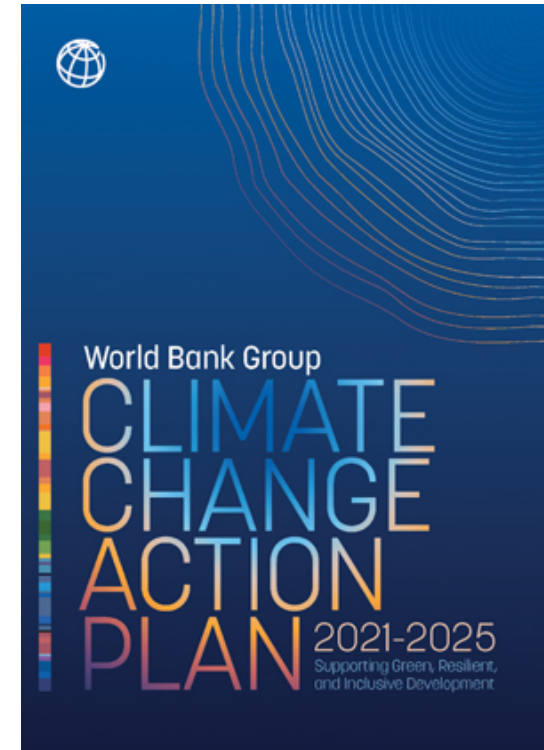
Mill Type	Reported Ranges		
	Water Consumption (m <sup>3</sup> /t) <sup>a</sup>	Heat Energy (GJ/t)	Electrical Energy (kWh/t)
Kraft Pulping, bleached	20 – 100 <sup>b</sup>	10 - 14	600 – 1200 <sup>c</sup>
Sulfite Pulping (magnesium base)	40 - 100		
Mechanical Pulping—Groundwood	5 – 15		1100 – 2200 <sup>c</sup>
Mechanical Pulping—TMP	4 – 10		1800 – 3600 <sup>d</sup>
Mechanical Pulping—CTMP	15 - 50		1000 – 4300 <sup>e</sup>

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# Q&A

# Greenhouse Gases: GHG

- Consider “technically and financially feasible and cost effective” options to reduce project related GHG, including:
  - location,
  - adoption of renewable or low carbon energy sources,
  - adoption of low-GHG technologies, and
  - reduction of fugitive emissions
- Projects producing >25,000 tonnes of CO<sub>2</sub>eq will calculate scope 1 & 2 emissions annually—client responsibility.
- Use of internationally recognized methodologies and good practices.
- Document GHG impacts in ESIA.





# Greenhouse Gases: Issues/Tips



- Preventive approach expected.
- Assessment of “climate change” risks under PS1.
- Definition of the GHG of the project (to be financed) vs client or sponsor:
  - *“direct emissions from the facilities owned or controlled within the physical project boundary”*
- Sometimes the methodology / emission factors used to estimate GHG not aligned with GIIP

# Pollution Prevention

- Applies to the release of pollutants to the air, soil, groundwater, and surface waters due to routine, nonroutine, and accidental events.
- Avoid release of pollutants.
- Historical pollution—determine who is responsible for mitigation, if client, then resolve as per national law / GIIP.
- Consider existing ambient conditions, finite assimilative capacity, existing and future land use, proximity to important biodiversity, and cumulative impacts.
- In degraded areas consider additional strategies to minimize impacts.



# Pollution Prevention: Wastes



## Pollution Prevention

### Wastes

Hazardous materials management

Pesticide use and management

- Hazardous and non-hazardous waste materials.
- Avoid, reduce, reuse, recover, recycle.
- Treat or dispose in an environmentally sound manner.
- Disposal — Consider GIIP alternatives for disposal; consideration of transboundary movement of hazardous wastes (Basel Convention).
- Disposal by third parties: qualifications and chain of custody. Client to ascertain capacity.
- If needed, develop own recovery or disposal facilities (aligned with GIIP)

# Pollution Prevention: Hazardous Materials



## Pollution Prevention

Wastes

Hazardous materials management

Pesticide use and management

- Avoid, or where this is not possible, minimize, use and regularly look for further substitution opportunities.
- Include assessment of production, transportation, handling, storage, and use “for project activities.”
- Avoid the manufacture, trade, and use of materials subject to international bans or phase outs.





# Pollution Prevention: Pesticide Use and Management



## Pollution Prevention

Wastes

Hazardous materials management

Pesticide use and management

- Use vs production or handling.
- Integrated pest and/or vector management—chemicals as a last resort:
  - Consider pest control methods: cultural practices, biological, genetic methods.
- Consideration of toxicity levels on humans and the environment
- Assess production, transportation, handling, storage and use
- FAO's International Code of Conduct on the Distribution and Use of Pesticides or other GIIP
- No purchase, storage, use, manufacture or trade of WHO Class 1a or 1b products, and strict controls on use of Class II.

# Pollution Prevention: Issues/Tips



- Mitigation Hierarchy – pollution “prevention”
- Resource Efficiency: Can wastes be revenue streams? e.g., plastic recycling or hazardous waste as fuel for cement kilns.
- Resource Efficiency trade-offs: Energy or Water?
- Additional requirements due to international agreements (e.g., CFC phaseout)
- For existing facilities: site-specific GIIP targets within a time-bound action plan
- Consideration for limited local capacity
  - Specialized technical skills, services, technology
  - Lack of effective monitoring of “chain of custody”
- Use WBG EHS Guidelines and other information resources

# PS3 Publications

## Guidance Notes



Guidance Notes to IFC's Performance Standards - Effective January 1, 2012

## EHS Guidelines



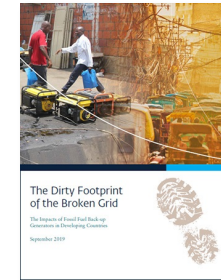
General Environmental, Health, and Safety Guidelines (2007)

## Good Practice Note

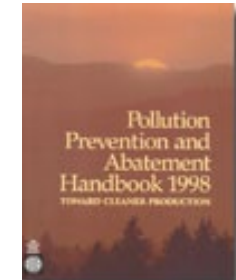


Good Practice Note: Environmental, Health, and Safety Approaches for Hydropower Projects (2018)

## Pollution Prevention



The Dirty Footprint of the Broken Grid: The Impacts of Fossil Fuel Back-up Generators in Developing Countries (2019)

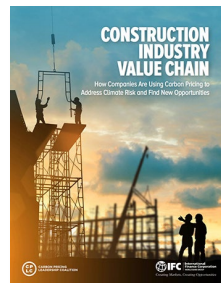


Pollution Prevention and Abatement Handbook (1999)

## Resource Efficiency



South African Agri-Processing Resource Efficiency: Opportunities, Challenges and Outlook (2020)



Construction Industry Value Chain: How Companies are Using Carbon Pricing to Address Climate Risk and Find New Opportunities (2018)



Waste Heat Recovery for the Cement Sector: Market and Supplier Analysis (2014)



Water Efficiency: When Water Flows - So Does Cash (2014)



Existing and Potential Technologies for Carbon Emissions Reductions in the Indian Cement Industry (2013)



Resource Efficiency in the Ferrous Foundry Industry in Russia (2011)

# ESG Resources

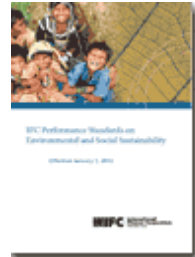


## IFC Sustainability Framework (2012)

[www.ifc.org/sustainability](http://www.ifc.org/sustainability)



IFC Sustainability Framework - Effective January 1, 2012



IFC Performance Standards on Environmental and Social Sustainability - Effective January 1, 2012



Guidance Notes to IFC's Performance Standards - Effective January 1, 2012

## ESG Publications:

For a full list, see:

[www.ifc.org/sustainabilitypublications](http://www.ifc.org/sustainabilitypublications)

Also see: [www.ifc.org/corporategovernance](http://www.ifc.org/corporategovernance)



Good Practice Handbook: Assessing and Managing Environmental and Social Risks in an Agro-Commodity Supply Chain



Good Practice Handbook: Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets



IFC Sustainability Resources Brochure



Private Equity and Emerging Markets Agribusiness: Building Value Through Sustainability



[www.ifc.org/disclosure](http://www.ifc.org/disclosure)

## WBG EHS Guidelines

[www.ifc.org/ehsguidelines](http://www.ifc.org/ehsguidelines)



**World Bank Group (WBG) Environmental, Health, and Safety (EHS) Guidelines**

IFC has launched a three-year consultative process to revise the WBG EHS Guidelines. See

[www.ifc.org/EHSGuidelinesRevision](http://www.ifc.org/EHSGuidelinesRevision)



Raising the Bar on Corporate Governance: A Study of Eight Stock Exchange Indices



Emerging Trends in Environmental, Social, and Governance Data and Disclosure: Opportunities and Challenges



Corporate Governance Success Stories - Middle East and North Africa



Corporate Governance Success Stories - Europe and Central Asia

# ESG Resources



## Learning / Tools / Methodology

See: [www.ifc.org/sustainability](http://www.ifc.org/sustainability) and [www.ifc.org/corporategovernance](http://www.ifc.org/corporategovernance)

- **E-Learning Course on Managing Environmental and Social Performance**



- **FIRST for Sustainability**  
See: [www.firstforsustainability.org](http://www.firstforsustainability.org)  
Available in English, French, Chinese, Russian and Spanish

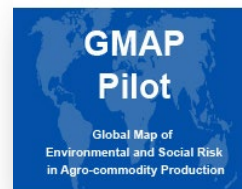


- **Sustainability Training and E-Learning Program (STEP) for Financial Intermediaries** Available in English, French, Russian



- **Global Map of Environmental and Social Risks in Agro-Commodity Production (GMAP)**

See: [www.ifc.org/gmap](http://www.ifc.org/gmap)



- **Corporate Governance Methodology Tools**
- **Corporate Governance Development Framework Toolkit**
- **IFC Nominee Directors Training**
- **Environmental and Social Management System (ESMS) Toolkit and Handbooks**



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# Q&A



# How To Use The EHS Guidelines

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- General EHS Guidelines
  - Industry specific EHS Guidelines
- Host country regulations vs. EHS Guidelines: projects are expected to achieve whichever is more stringent
- Applicability tailored to the hazards and risks of the project
  - Existing facilities: transition period
  - Alternative levels or measures: recommended by ESIA need to be justified
- Numerical discharge limits applicable in case of direct discharge to the environment