

Targeted Guidance: UNDP SES Standard 8 Pollution Prevention and Resource Efficiency

SES Standard 8 requires that projects seek to anticipate, avoid, minimize and mitigate adverse impacts on human health and the environment by avoiding or minimizing pollution from project activities and promoting more sustainable use of resources, including energy, land and water.

Standard 8 also includes a focus on avoiding and minimizing project-related emissions of short and long-lived climate pollutants and ozone-depleting substances as well as generation of hazardous and non-hazardous substances and wastes. It also includes requirements regarding safe, effective, environmentally sound pest management.

Requirements of Standard 8 apply to projects that (i) aim to improve existing waste management practices; (ii) generate or cause generation of solid, liquid or gaseous waste; (iii) use, cause use of, or manage the use, storage or disposal of hazardous materials and chemicals, including pesticides; and (iv) that significantly consume or cause consumption of water, energy, or other resources.

This targeted guidance¹ provides a brief overview on addressing Standard 8 during the project screening, assessment and management process (for more on addressing SES requirements through project screening, assessment and management, see the SES Guidance Notes on the Social and Environmental Screening Procedure, SESP, and on Social and Environmental Assessment and Management in the [SES Toolkit](#)).


It also provides links to existing guidance materials on Pollution Prevention and Resource Efficiency (abbreviated here as “PP/RE”) that may be relevant for addressing various aspects of SES Standard 8. UNDP’s SES Standard 8 is well aligned with the relevant requirements of other entities; however it is necessary to ensure that the specific requirements of Standard 8 are carefully reviewed and addressed in project assessments, management planning and implementation.

Box. Key conventions and agreements referenced in Standard 8

- [Montreal Protocol](#) (1987) regulates and phases down the production and consumption of ozone depleting substances (ODS) and with the Kigali Amendment (2016) hydrofluorocarbons (HFCs) given their high global warming potential.
- [Basel Convention](#) (1989) protects human health and the environment against the adverse effects of hazardous wastes with a focus on minimizing generation, controlling transboundary movement, and promoting environmentally sound management.
- [Rotterdam Convention](#) (1998) promotes sound use and shared responsibility in international trade of certain hazardous chemicals in order to protect human health and the environment
- [Stockholm Convention](#) (2001) protects human health and the environment from persistent organic pollutants.
- [Minamata Convention](#) (2013) protects human health and the environment from anthropogenic emissions and releases of mercury and mercury compounds.

¹ UNDP’s SES Guidance Notes provide guidance for implementing UNDP’s Social and Environmental Standards (SES). Targeted Guidance provides a short overview of relevant issues and includes references to existing guidance materials. The SES Guidance Notes (whether comprehensive or targeted) help to explain the relevant policy requirements of the SES; they do not set policy. In the case of any inconsistency or conflict between the Guidance Notes and the SES, the provisions of the SES prevail.

Brief overview: Addressing SES Standard 8 during project screening, assessment and management


<p>Screening</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Screen project concept with SESP. The SESP S8 risk checklist questions ask whether the project would potentially involve or lead to: <ul style="list-style-type: none"> • the release of pollutants to the environment due to routine or non-routine circumstances with the potential for adverse local, regional, and/or transboundary impacts? (Q8.1) • the generation of waste (both hazardous and non-hazardous)? (Q8.2) • the manufacture, trade, release, and/or use of hazardous materials and/or chemicals? (Q8.3) • the use of chemicals or materials subject to international bans or phase-outs? For example, DDT, PCBs and other chemicals listed in international conventions such as the Montreal Protocol, Minamata Convention, Basel Convention, Rotterdam Convention, Stockholm Convention (Q8.4) • the application of pesticides that may have a negative effect on the environment or human health? (Q8.5) • significant consumption of raw materials, energy, and/or water? (Q8.6) <input checked="" type="checkbox"/> Utilizing the SESP, for each question answered with “yes,” rate significance of potential risks and impacts regarding pollution and resource use and categorize project. <p style="margin-left: 20px;">  See the section of the SESP Guidance Note on rating significance of potential social and environmental risks by estimating both the potential impact (e.g. consequences if the risk occurs) and likelihood (e.g. the chance of the risk occurring) (see Tables 2-4 for definitions and a scoring matrix) </p> <input checked="" type="checkbox"/> Consider the need for particular expertise during project design to address potential PP/RE issues, risks and S8 requirements (e.g. waste management, emissions control, hazardous materials management, cleaner production and efficiency expertise, etc.). <input checked="" type="checkbox"/> Incorporate measures in project design to avoid and minimize potential adverse impacts concerning pollution and resource use. <input checked="" type="checkbox"/> Undertake stakeholder analysis and early, meaningful consultations to further identify concerns regarding pollution and resource use. Ensure project Stakeholder Engagement Plan addresses relevant stakeholders. <input checked="" type="checkbox"/> Update PP/RE issues in SESP and ProDoc for project appraisal.
<p>Assessment</p>	<ul style="list-style-type: none"> <input checked="" type="checkbox"/> Consider direct, indirect and potential cumulative project-specific risks and impacts regarding pollution and/or resource use. This may encompass the following, as relevant: <ul style="list-style-type: none"> • Consider a range of factors in assessing adverse pollution impacts on existing ambient conditions (such as air, surface water, groundwater, and soils), including but not limited to the finite assimilative capacity of the environment,² existing and

² Assimilative capacity of the environment refers to the capacity of the environment for absorbing an incremental load of pollutants while remaining below a threshold of unacceptable risk to human health and the environment. The assimilative capacity of receiving water bodies may depend on numerous factors, including, for example, the total volume of water, flow and flushing rates, temperature of received discharge, and the loading of pollutants from other effluent sources in the area or region. The assimilative capacity of soil may depend on the characteristics of both the received discharge and the soil, as well as the type of microbial, chemical, and physical reactions that take place in the soil layer, and climatic conditions. Waste may include sewage sludge, municipal solid waste, municipal wastewater, industrial waste, agricultural waste, and leachates of

planned land use, existing ambient conditions, the project's proximity to ecologically sensitive or protected areas (see SES Standard 1).


- Consider potential climate change impacts of project-related pollutants/emissions (see SES Standard 2 and its Guidance Note in [SES Toolkit](#)).
- Consider project-related waste generation and disposal, including hazardous wastes.
- Where hazardous materials may be a concern, assess the health risks—including potential differentiated effects on men, women and children and consider the special vulnerabilities faced by workers as well as low-income communities, peoples with disabilities, indigenous peoples and minorities to hazardous materials.
- Assess the cumulative impacts of water use where project may have high water demand (generally greater than 5,000 m³/day in non-arid climates). Assess potential project-related consumption/use of land/soils, energy, and other inputs where significant. Also assess impacts on water quality.
- Carefully assess hazards associated with pesticide use, as relevant.

- For Moderate Risk projects: where potential risks and impacts regarding pollution and/or resource use are well understood, incorporate straightforward mitigation measures per good international practice into SESP, ProDoc and relevant project contracts. Where potential Moderate Risks are less well understood, undertake targeted assessment of limited risks and impacts due to pollution and/or resource use.

 *Note that complex Moderate Risk projects may require more than one type of targeted assessment (e.g. effluent study, review of presence of asbestos). Also, Moderate Risk projects may need to address more than one SES standard and the various assessment and management planning measures should be coordinated.*

- For projects with Substantial or High Risks regarding pollution and/or resource use, undertake a scoped ESIA (Substantial Risk) or full ESIA (High Risk). ESIA should include appropriate assessments regarding pollution and resource use based on a scoping study of project risks and impacts. The ESIA may include a range of chapters focused on specific hazards (e.g. pollutants, wastes, hazardous materials, pesticides, etc.).

- Where an Environmental and Social Management Framework (ESMF, see SES Guidance Note on Social and Environmental Assessment and Management) is being prepared and potential risks and impacts regarding pollution and resource use have been identified, ensure ESMF includes measures for further screening, assessment and management of relevant risks and impacts once project details and sites are further elaborated.

 *Note that required social and environmental assessments and adoption of appropriate mitigation and management measures must be completed, disclosed, and discussed with stakeholders and in place prior to implementation of any activities that may cause adverse social and environmental impacts.*

manure disposed of on land or used as fertilizer. To determine the assimilative capacity of an airshed, emission levels, ambient air quality standards, and prevailing meteorological conditions are taken into account.


	<ul style="list-style-type: none"> ☑ Engage qualified and experienced experts and ensure that assessments of risks and impacts regarding pollution and/or resource use are based on good international practice, tailored to the specific sector or activities. ☑ Ensure meaningful consultations, effective stakeholder consultations are undertaken, including with relevant regulatory authorities and project-affected communities and individuals.
<p>Management</p>	<ul style="list-style-type: none"> ☑ Ensure requirements of Standard 8 are reflected in project mitigation and management measures. These include but are not limited to the following (see the referenced S8 paragraph for full details on applicable requirements; key topic highlighted): <ul style="list-style-type: none"> • Apply pollution prevention and control technologies and practices tailored to the specific hazards following during the project life cycle, utilizing performance levels and measures specified in national law or in good international good practice,³ whichever is more stringent (S8, 4). • If project activities generate significant pollutants in already degraded/polluted areas, adopt measures that avoid and minimize potential negative effects, including potential alternative locations. Control runoff of contaminated water from project sites and ensure polluted wastewater is treated (S8, 6). • Where waste generation cannot be avoided, reduce the generation of waste—including plastics—and recover and reuse waste in a manner that is safe for human health and the environment. Where waste cannot be recovered or reused, it is treated, destroyed, or disposed of in an environmentally sound manner that includes the appropriate control of emissions and residues. Develop waste management plans where waste generation and handling may be significant (S8, 7). <ul style="list-style-type: none"> ☞ <i>The obligations to manage waste in an environmentally sound and safe manner should be included in relevant contractual arrangements of the project, particularly any technical design and construction contracts.</i> • Adopt reasonable alternatives for environmentally sound disposal of hazardous waste⁴ (as defined by international conventions or local legislation) and adhere to limitations applicable to its transboundary movement.⁵ Ensure the use of contractors that are reputable and legitimate enterprises licensed by the relevant

³ As reflected in internationally recognized standards such as the World Bank Group's [Environmental, Health and Safety Guidelines](#). These standards contain performance levels and measures that will normally be acceptable and applicable to projects. When national regulations differ from these levels and measures, the Implementing Partner will achieve whichever are more stringent. If less stringent levels or measures are appropriate in view of specific project circumstances, the Implementing Partner will provide full and detailed justification for any proposed alternatives, provided that such alternatives are consistent with the requirements of UNDPs SES.


⁴ Hazardous waste may include: explosives; compressed gases, including toxic or flammable gases; flammable liquids; flammable solids; oxidizing substances; toxic materials; radioactive material, including radioactive medical waste; corrosive substances; chemical fertilizers; soil amendments; chemicals, oils, and other hydrocarbons; paints; pesticides; herbicides; fungicides; asbestos; metal waste; hospital waste; used batteries; fluorescent light bulbs and ballasts; byproducts of plastic incineration at low temperatures; heavy metals (Pb, Cr, Cd, and Hg); dioxin-bearing wastes; and polychlorinated biphenyls (PCBs) in electrical equipment.

⁵ Transboundary movement of hazardous materials should be consistent with national, regional and international law, including the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal, available at www.basel.int, and the London Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, available at www.imo.org. For further guidance, the Strategic Approach to International Chemicals Management (SAICM) is a policy framework to foster the sound management of chemicals, available at <http://www.saicm.org/>.

government regulatory agencies to handle hazardous waste and that chain of custody documentation to the final destination is obtained. Also ascertain if licensed disposal sites are being operated to acceptable standards; if this is not the case, minimize waste sent to such sites and consider alternative disposal options (S8, 8).

 *Information obtained as part of the process to contract third parties for hazardous and nonhazardous waste management may be essential to ascertain the reputability and legitimacy of the third party. Information about and/or provided by and pertinent to the third party may need to include: information in public records, for example, corporate registers; current business licenses, registrations, permits, certificates, and approvals; documents relating to their track record pertaining to hazardous waste management systems; safety records; and copies of relevant previous contracts.*


- Develop **hazardous materials management and safety measures/plans** per good international practice to avoid, minimize and control release and exposure to hazardous materials resulting from their production, transportation, handling, storage and use. Do not support the manufacture, trade, and use of chemicals and hazardous materials subject to international bans, restrictions or phase-outs due to their high toxicity to living organisms, environmental persistence, potential for bioaccumulation, or potential for depletion of the ozone layer, unless for acceptable purposes as defined by the conventions or protocols (see above Box) (S8, 9).

 *The relevant conventions listed in the above Box are considered in the assessment as they relate to the project, regardless of whether the partner country is a party to those conventions. The requirements of these conventions, and their protocols, and agreements are addressed, as relevant, in any proposed mitigation measures.*


- Utilize Integrated Pest Management (IPM) and Integrated Vector Management (IVM) approaches for **pest control and management**. Where use of pesticides is still considered necessary, adopt safe, effective and environmentally sound pest management in accordance with the WHO/FAO International Code of Conduct on Pesticide Management⁶ for the safe labelling, packaging, handling, storage, application and disposal of pesticides. Develop a Pest Management Plan where use of a significant volume of pesticides is foreseen. Hazards of pesticide use are to be carefully considered and the least toxic pesticides selected that are known to be effective, have minimal effects on non-target species and the environment, and minimize risks associated with development of resistance in pests and vectors. Ensure that users of any pesticides are trained to handle pesticides in a proper and responsible manner and utilize appropriate application equipment and adequate personal protective equipment (S8, 10-11).
- Do not supply or use pesticides that contain active ingredients that are banned or restricted under applicable international treaties and agreements, or meet the criteria of carcinogenicity, mutagenicity, or reproductive toxicity as set forth by relevant international agencies⁷ (S8, 11).

⁶ FAO/WHO, [The International Code of Conduct on Pesticide Management](#) (2014).


⁷ Including those that meet the criteria for Highly Hazardous Pesticides identified by WHO and FAO: (1) pesticide formulations that meet the criteria of classes Ia or Ib of the [WHO Recommended Classification of Pesticides by Hazard \(2019\)](#); (2) pesticide active ingredients and their formulations that meet the criteria of carcinogenicity, mutagenicity, and reproductive toxicity Categories 1A and 1B of the Globally Harmonized System on Classification and Labelling of Chemicals (GHS); (3) pesticide active ingredients listed by the [Stockholm Convention](#) in its Annexes A and B, and those meeting all the criteria in paragraph 1 of annex D of the Convention; (4) pesticide active ingredients and formulations listed by the [Rotterdam Convention](#) in its Annex III; (5) pesticides listed under the [Montreal Protocol](#); and (6) pesticide active ingredients and formulations that have shown a high incidence of severe or irreversible adverse effects on human health or the environment.

 *The list of pesticides proposed for procurement under the project must be checked against the criteria of carcinogenicity, mutagenicity, or reproductive toxicity outlined in the pesticide's Material Safety Data Sheet and as set forth by relevant international agencies and outlined in the Globally Harmonized System of Classification and Labelling of Chemicals (GHS) (see relevant guidance in the following section).*

- Implement technically and financially feasible and cost-effective **resource efficiency measures** that promote the efficient use and consumption of land/soils, energy, water, and other resources and material inputs. Integrate principles of cleaner production (utilizing benchmarking data to measure efficiency of resource intensive processes) and consider principles of green design, circular economy, sustainable infrastructure and sustainable procurement where feasible (S8, 12).
- Reduce **water usage** so that project water consumption does not have significant adverse impacts on communities, other users or the environment and ecosystems for projects with high water demand (generally greater than 5,000 m³/day in non-arid climates). Implement appropriate mitigation measures, such as water demand management, efficiency measures, benchmarking usage, alternative supplies, resource contamination avoidance, mitigation of impacts on downstream users, and water use offsets. Apply good international practice for water conservation and efficiency, including for irrigation activities and wastewater usage (S8, 13).

 *Examples of mitigation measures include avoiding impacts by re-siting the project, applying resource efficiency measures to reduce system impacts such as reverse osmosis-based water recovery, dry cooling, minimizing evaporation/ evapotranspiration, improving irrigation systems as well as irrigation scheduling, including use of recycled urban water, promoting soil-water conservation measures (such as conservation tillage and incorporation of crop residue where appropriate), and in terms of water quality, promoting rational use of fertilizers and better management of animal wastes.*

- ☑ Ensure PP/RE management measures/plans are integrated into project's overall monitoring plan, proportionate to the nature of the project, the project's social and environmental risks and impacts, and requirements to comply with Standard 8.

 *Monitoring is particularly important for projects with impacts that are uncertain and/or potentially irreversible. These projects consequently may call for more frequent or more detailed evaluation of emission levels or ambient quality. Guidance on recommended monitoring approaches and frequencies appropriate to the nature of their operations is available from many internationally recognized sources including the EHSGs.*

- ☑ Revise SESP during project implementation where (a) new information becomes available, (b) there are substantive changes to the project, or (c) changes in project context might alter the project's risk profile regarding risks and impacts concerning pollution and resource use. If re-screening results in a higher risk profile, the revised SESP needs to be reviewed by the Project Board or a subsequent PAC and the project Risk register is updated. Additional assessment and/or management measures regarding risks and impacts concerning pollution and resource use may need to be developed and implemented.
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Existing guidance materials on addressing project-related risks/impacts regarding Pollution Prevention and Resource Efficiency

Topic	Issues/concerns	Resources
General Guidance	<ul style="list-style-type: none"> Increased community exposure to risks and impacts from project activities, equipment, infrastructure 	<ul style="list-style-type: none"> IFC, Guidance Note on IFC PS3 on Resource Efficiency and Pollution Prevention (2012). World Bank, Guidance Note for Borrowers on ESS3: Resource Efficiency and Pollution Prevention and Management (2018). See also extensive list of references in this Guidance Note.
Pollution prevention	<ul style="list-style-type: none"> Adverse health and environmental impacts from pollution 	<ul style="list-style-type: none"> World Bank Group's Environmental, Health and Safety Guidelines (EHSGs) contain performance levels and measures that will normally be acceptable and applicable to projects. See <i>inter alia</i> ESHG 1.1 Air Emissions and Ambient Air Quality and 1.3 Wastewater and Ambient Water Quality.
Wastes	<ul style="list-style-type: none"> Adverse health and environmental impacts from wastes 	<ul style="list-style-type: none"> OHCHR, Guidelines for good practices in relation to the human rights obligations related to the environmentally sound management and disposal of hazardous substances and wastes (2017).
Hazardous materials	<ul style="list-style-type: none"> Exposure to hazardous materials and substances Use of banned or phase-out substances. May include 	<ul style="list-style-type: none"> WBG, EHSG Guideline 1.5 Hazardous Materials Management. See conventions in Box 1 for guidance regarding banned or phase out substances
Pesticide use and management	<ul style="list-style-type: none"> Health and environmental impacts from pesticides Pesticide resistance 	<ul style="list-style-type: none"> See FAO, Integrated Pest Management and IPM Principles and Practices, and How to Practice IPM. FAO/WHO, International Code of Conduct on Pesticide Management (2014). See further technical guidelines on the International Code of Conduct on Pesticide Management, including Guidelines on Highly Hazardous Pesticides (2016), Guidelines for Personal Protection When Handling and Applying Pesticides (2020), various guidelines on proper use of pesticides.
Resource efficiency	<ul style="list-style-type: none"> Unsustainable and/or inefficient resource use contributes to resource depletion, pollution, climate change impacts 	<ul style="list-style-type: none"> WBG, Environmental, Health and Safety Guidelines (EHSGs). See UNEP Circularity Platform and various resources on circular economy approaches.
Water usage	<ul style="list-style-type: none"> High volume of withdrawals may contribute to water depletion and/or changes in water quality 	<ul style="list-style-type: none"> World Bank, Good Practice Note on Water Use (2021). See discussion on water use in projects, methodologies to understand water balance, examples of mitigation/management measures.

	<ul style="list-style-type: none">• water usage exceeds water recharging, leading to degradation of water supplies and adverse impacts on communities, environment, ecosystems	<ul style="list-style-type: none">• WBG, Environmental Health and Safety Guideline 1.4 on Water Conservation.• UNDP, SES 1 Guidance Note on Biodiversity Conservation and Sustainable Natural Resource Management, including section 4.1.2 regarding impacts on ecosystem services.• UNEP-DHI Centre for Water and the Environment, Integrated Water Resources Management in Action (2009).
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