Environmental Checklist for Oxfam WASH

Contents of the Checklist

01. Introduction

This checklist provides a quick reference for Oxfam WASH personnel and partners, to get a quick understanding of how different WASH activities **impact the environment** in which a WASH intervention is being carried out, and consequently begin to consider what measures at **project design** should be implemented to mitigate or reduce adverse impacts on the environment.

Oxfam has a responsibility to adhere to **local regulations** and any environmental action should be done in consultation and coordination with **local authorities and communities**. It is likely that some contexts will be lacking any environmental regulations but are bound by the do no harm principle, commitment to the climate and environmental charter, SPHERE standards, the CHS commitments, among others, to **safeguard the environment**, even in the absence of strong governance. From the onset, community leaders and relevant government entities should be consulted as they are a knowledgeable source of information on the natural environment.

The role of **community engagement** in achieving long term environmental protection, particularly post-handover cannot be overemphasized. Involvement of local communities in decisions relating to environmental management and extraction of natural resources should be a mandatory prerequisite. User **sensitization and awareness** of environment issues should form part of the community engagement agenda, including a gradual shift of mindset on tasks and precautions they can undertake to protect the environment e.g. safe disposal of waste, purchasing choices. Besides that, environmental management should be integrated into a comprehensive **hand over strategy** that includes O&M of WASH infrastructure, training of users, finance plan (such as a cost recovery plan) for repairs and replacement, long term actions to protect and sustain the environment etc.

It is obvious that Oxfam will not be acting in isolation in any WASH response, and hence the importance of **coordinating with other stakeholders** to understand the potential combined environmental impacts and work collaboratively to minimize them.

At project design, in order to design appropriate environmental mitigation measures, it is important to understand the context and the various environmental sensitivities and vulnerabilities of each context such as risks to the people, the vegetation, soil, water etc. For example, confined aquifers are less prone to contamination but have lower recharge rates which means over-abstraction (exceeding recharge rate) would be detrimental to their long-term sustainability. Unconfined aquifers may offer better quality water due to higher recharge rates but are more liable to cause declining water tables. Having such information informs the extent of measures necessary to counter or reduce the risks.

The **NEAT+ toolkit** (available in English, French and Spanish. Arabic version being developed) is an environmental screening tool, that allows WASH personnel to quickly capture these sensitivities and fragilities of the local environment and the potential risks of their activities and helps make informed decisions on what mitigation measures are required. More detailed environmental assessments and analysis may be necessary depending on the results of the tool and the context.

02. WASH Environmental Checklist

ACTIVITY	POTENTIAL ENVIRONMENTAL RISK	MITIGATION MEASURE	VALUE ADDED/OUTCOME
2.1 Water Supply			
Water trucking	Over-abstraction Water leakages from trucks	Ensure water source can cope with additional demand, monitor water level if not clear. Use water level sensors and GPS trackers in tanks to improve efficiency of water trucking. Monitor contractors and transport fleets to ensure they are in good state.	Water efficiency Water security
	CO2 emissions	The first step to reducing CO2 emissions is to quantify them (what you don't measure you can't address). Estimate carbon emissions and use environmental as well as financial cost in decision making. Use fuel efficient vehicles and well-maintained vehicles to reduce fuel consumption and emissions. Use optimal routes to shorten the journey.	CO_2 reduction Climate mitigation Sustainability
	Water and soil contamination	Regularly test trucked water and ensure compliance with national/international standards. Dispose of used tyre casings, batteries, motor oil and other vehicle waste responsibly.	Safe water Soil protection
	Conflicts	Water trucked should not undermine supply to host communities Undertake community engagement.	Peace and cohesion
	Dust and noise Road accidents Road damage	Sensitize the drivers on acceptable and appropriate driving etiquette (speed limits, no engine idling). Liaise with other partners to ensure road upgrades and maintenance.	Public health and safety Clean environment
Groundwater Abstraction	Reduction in water table affecting existing wells or boreholes	Engage competent hydrogeological expertise. Test pumping of borehole to understand aquifer properties. Monitor water rest level and flow patterns in production boreholes as a minimum requirement to develop a time series and observe trends distinguishable from season fluctuations. These will help in revealing unsustainable water extraction. Monitor surrounding borehole water levels. Lower or upgrade pumps in affected waterpoints. Decommission wells if necessary and seek alternative water sources if feasible.	Water resource management

	Over-abstraction: long term declining water levels, decline in water quality (particularly in coastal areas where saline intrusion is a risk), land subsidence, increased energy needs,	Set production rate conservatively. In the absence of national standards 2/3s of maximum pump tested discharge is commonly used, assuming groundwater levels have stabilised. Coordinate efforts/share data with other agencies. Partner with hydrogeology specialists to understand the aquifer and its sustainable yield (e.g. Groundwater Relief, Cox's Bazar, development of groundwater model	Water security Water quality
Shallow and surface source extraction	Source contamination from increased human and animal activity	Create a buffer zone (e.g. fence) around shallow and surface water sources to prevent waste and defecation. Line and protect water sources such as wells and springs. Regularly monitor water quality both upstream and downstream.	Safe water
	Over-abstraction: Depletion of natural reservoirs, stream flow reduction and alteration of flow paths	Identify shared users of the resource (such as upstream and downstream users) and consider these in design and operation of the system. Monitor water levels, flow rates, flow routes and compare with historical data sets to identify changing patterns. Lower, upgrade or decommission pumps if necessary.	Water resource management
New boreholes/ waterpoints	New waterpoints create opportunity but can have unintended consequence through attracting people, animals and or new activities. E.g. a permanent water source in a seasonal livestock grazing area is likely to change movement patterns and could result in over grazing. Brick making using earth	Engagement with communities and authorities at planning stage. Environmental impact assessment Prioritise rehabilitation of existing water sources over development of new water points.	
Pumping	High energy use/CO2 emissions if using diesel generators in off grid situations	Consider solar pumping (or other RE) as a preferred default first choice option, justify where not used. Where generators are required ensure they are not oversized, and water network is efficiently designed to minimise energy use. Calculate carbon emission and see improvements in efficiency can be made either through water conservation or hydraulic design improvements. Apply efficient water network design. Consider pump efficiencies in procurement and work out the feasibility of replacing inefficient pumps e.g when rehabilitating a water point, don't just assume that the existing equipment is fit for use, rather evaluate the benefit of replacing with new more efficient sets	CO_2 reduction Clean energy

	Air and noise pollution from generators	Where generators must be used, keep usage at minimal and opt for silent, less-emitting sets.	Clean environment CO_2 reduction
Abandoned wells	Pathways for contamination of aquifers	Professionally seal abandoned wells.	Safe water
Distribution networks, Communal points, Animal troughs, Tapstands,	Wastage of water / poor drainage resulting in stagnant water and contaminated run off	Use good quality taps and self-closing taps Use innovations such as water ATMs and e-vouchers to ration or sell water as per context to minimise wastage. Sensitization messages on efficient water use. Direct drainage water into "kitchen" gardens or tree planting.	Water efficiency Food security Reforestation
	Water network leakages that cause soil erosion, water logging	Good network design to avoid high pressure at tapstands. Choose high quality pipe materials. Improve drainage from earth channels to gravel/concrete and level the ground to prevent pooling of water. Perform regular maintenance to address leakages.	Water efficiency
	Water contamination and ground degradation from livestock watering	Create a buffer zone around water points	Safe water
	Conflicts at distribution/collection points	Capture the preferences of the end user and design accordingly. Design for optimal number of users per collection point to avoid shortages and overcrowding. Ensure equity (both pressure and supply) through proper design and use of water ATMs and other methods.	Peace and cohesion
Use of bottled water	Single use plastics contaminating environment	Bottled water is a last resort only used in exceptional circumstances and only for limited period. Implement in parallel with waste collection and recycling if feasible.	Clean environment CO_2 reduction
Guidance Users should be provided with adequate quantities of water referencing relevant standards. The water demand should be compared with the recharge rates of the water source and design done to be within safe abstraction rates. Short term over abstraction may be unavoidable in an emergency, and when water needs are unclear. However sustainable medium- and long-term mitigation measures should be identified and implemented along with the emergency WASH intervention with full understanding of the social, economic and environmental impact of the short-term abstraction. Water trucking may be necessary in the short term but is unsustainable and its impact on the environment from carbon emissions is high. Any intervention making use of water trucking at the onset should have an exit strategy to phase out water trucking as soon as possible and replace with lower energy, lower Op-ex solutions.			
Build back better +ve measures			

Water conservation	Rainwater harvesting to meet or supplement existing supply	Requires cost analysis to determine feasibility. Where rainfall is low or seasonal, rainwater harvesting (per unit of water) increases as large storage/extensive gutter system is required. Similarly, reliability will vary.
	Hillside terracing and/or check dams along drainage channels to reduce runoff and increase percolation of rainfall into the ground	Labour intensive and typically needs to be part of a longer-term programme in partnership with communities and authorities and at scale to have an impact.

2.2 Water Quality

Surface water Treatment	Generation of sludge waste high from Alum dosing	Optimum dosing of aluminium sulphate Ensure safe disposal of sludge following local/National guidelines or safe burial away from watercourse and where there is no risk of seepage into groundwater.	Safe water
	Chemical pollution	Ensure proper storage of treatment chemicals (such as chlorine) to prevent leakages e.g.in sealed containers stored away from water points	Safe water
Household level treatment	Water disinfection by boiling causing deforestation	Provide safe and cost-effective alternatives Provide bulk water treatment at source or collection point Sensitize communities on the environmental impact of wood fuels	CO_2 reduction
Desalination	Generation of brine resulting in salination of soils or/contaminating shallow wells	Safely dispose concentrate following national and international guidelines	Safe water Soil protection
	Carbon emissions if using generators	Use clean energy to power desalination plants	CO_2 reduction
Water reservoirs/ tanks	Overflows that deplete water source, cause soil erosion, water stagnation, destroy vegetation/crops	Put in place automatic mechanisms for preventing overflows. Provide adequate drainage infrastructure.	Water efficiency Soil protection
	Danger to users e.g. children climbing on water tanks, risk of drowning in open tanks, dams	Robust and secured infrastructure that's not hazardous to users. Sensitize communities on the dangers present. Use warning signs to ward off undue access.	Public safety

2.3 Sanitation

Latrines/ Faecal sludge management	Odour nuisance	All latrines post emergency should be of improved design with optimum users per latrine. Site latrine at an optimal safe distance from living quarters	Clean environment

	Faecal sludge contaminating land, groundwater or water courses	Site latrines away from water courses. Choose appropriate technology in high water table areas – e.g. shallow raised latrines, twin vault urine diversion, containerised toilet. Adopt sludge treatment systems and monitor contaminant levels Consider full sanitation chain especially where waste is disposed/treated offsite. Ensure all contractors are closely monitored and safe disposal sites clearly identified and agreed.	Safe water
	Abandoned latrines pose a health and safety hazard	Properly decommission latrines by filling them up with rubble, soil or organic matter, and mark them off to prevent access.	Public health and safety
Wastewater management and drainage	Soil erosion and stagnant water pools,	Provide gravel/concrete channels. Provide natural filtration beds or soak pits	Soil protection
	Water contamination, loss of aquatic life, soil degradation, loss of soil fertility	Capture and treat grey water for discharge or reuse (e.g. for small scale agriculture, flashing toilets) while ensuring compliance with effluent/reuse standards Site discharge away from agricultural land, water bodies and water sources unless pre-treatment has been done and meets effluent standards	Circular economy Food security
Guidance Unregulated wastewater can become a health and environmental hazard by contaminating water, degrading the soil, harming aquatic life and even worsening flooding events. It should be monitored to inform design of drainage and treatment systems, and its quality regularly tested for organic, inorganic and microbial contamination to meet relevant effluent standards. Other activities outside of WASH such as industrial and agricultural activities can cause water contamination and should be identified and appropriate mitigation measures put in place, in coordination with relevant colleagues.			
Build back better +ive measures			
Waste to value	Production of bio-gas, compost/organic fertiliser or briquettes from faecal waste	Requires planning, commitment, the right skills and investment over an extended time period to make it a success.	

2.4 Hygiene Promotion

NFIs and hygiene kits	Carbon emission during production	Follow green procurement guidelines for selecting eco-friendly products	CO_2 reduction Sustainable purchasing
	Poor quality items increase pollution of plastic and other waste	Favour products made of natural (biodegradable) or re-used/recycled materials	Circular economy
	Misuse, improper disposal and management of hygiene kits	Sensitize users on optimal use and appropriate hygiene kit management	Clean environment

	Increased waste generation from NFI distribution	Conduct needs assessment to avoid distributing unnecessary and unsuitable items that will not be used	
Supply chain	Pollution and carbon emissions during delivery and distribution	Engage procurement for green logistics. Locally source NFIs that are locally manufactured through an environmentally friendly production process	CO_2 reduction Local livelihoods Sustainable purchasing
	Carbon emissions during production	Incorporate sustainability criteria in the procurement process and prefer suppliers/manufacturers with sustainability or environmental certifications	CO_2 reduction Sustainable purchasing
Handwashing	Contaminated run off Soil degradation	Provide proper drainage made of concrete or gravel. Install handwashing facilities that reuse the water for toilets. Direct run-off water for tree planting	Reforestation
Cash based interventions	Poor quality items increase pollution of plastic and other waste	Make market assessments to capture the environmental impact of items available in local markets Create awareness on purchasing choices and sustainable practices Where vouchers are used, consider tech solutions such as e-vouchers as opposed to paper vouchers	CO_2 reduction Clean environment
Build back better +ve measures			
Reverse logistics	Structure value chains to incorporate recycling of NFIs	Requires involvement of procurement and other players in the markets. Some markets may have limited recycling capabilities.	

2.5 Solid Waste Management

Household, shops and markets waste	Garbage accumulation and landfills	Separate organic and inorganic waste to reduce volume of waste that needs to go to landfill. Procure items with less packaging, or packaging that is more environmentally friendly or reusable.	Clean environment
	Water and soil contamination, ground water pollution.	Site waste areas away from water sources/points and communities. Dispose ash correctly.	Safe water
	Water stagnation, increased vector and rodent breeding, spreading of communicable diseases	Build the capacity of municipal actors to manage waste correctly post collection. Waste handlers should be provided with personal protective equipment.	Public health
	Smoke and odour from incineration, burning of plastics	Develop a community mindset of properly disposing waste through their own self initiative Encourage behavioural change through awareness campaigns e.g. negative practices such as burning plastic.	Clean environment

	Ingestion of waste e.g. cattle eating plastic bags	Set aside areas for waste burying and composting.	Animal health
	Odour nuisance	Site landfills away from communities	Clean environment
Build back better +ve measures			
Reverse logistics	Explore and promote re-use, re-purposing and recycling opportunities	Requires involvement of logistics and other stakeholders in the markets. Requires a change of strategy and approach. Some markets may have limited recycling capabilities.	

2.6 General /Cross-cutting

Community engagement	Generation of waste such as plastic bottles, posters etc during campaigns	Use eco-friendly material to prepare posters. Print only what is necessary. Collect litter and dispose appropriately. Avoid or minimize use of bottled water in plastic bottles	Clean environment
	Pollution and carbon emissions due to transport	Keep vehicle usage at a minimum e.g. car pool	CO_2 reduction
Construction of WASH infrastructure (Boreholes, tanks, Latrines etc)	Deforestation and harvesting of construction materials such as timber, sand, rocks, soil: depletion of local resources, damage to water sources, tensions and conflicts	Source sustainable timber. Consider alternative materials if timber is problematic Minimise amount of excavated soil and dispose it appropriately (e.g. reuse for construction, landfill etc). Implement revegetation strategies e.g. replanting native trees.	Natural resource management
	Clearing of vegetation: soil erosion and increasing vulnerability to landslides, destruction of natural habitats, damage to threated species, disruption of migration routes	Minimize vegetation clearing to only areas that are necessary.	Protection of ecosystem
	Soil compaction: noise, loss of soil suitability for agriculture	Limit compaction only to areas necessary for structural foundations	Soil protection
	Soil excavation: dust, noise, soil erosion, sedimentation in nearby water sources, stagnant water, open pits a hazard for children, deformation of natural landscape	Water spraying to minimise dust, protect those with these pollution sensitivities Excavate away from shallow or surface water sources Bury trenches quickly Monitor contractors for compliance with environmental procedures	Health and safety

Governance, Operation and Maintenance	Lack of hand over and cost recovery strategies Weak institutional structures for environmental management Low capacity to manage environmental issues	Devise a handover plan from the onset and implement (training of operators, cost recovery plan etc.) Engage, understand capacity gaps and increase environmental awareness Integrate environmental protection into capacity building activities of both formal (e.g. water office) and informal (e.g. WASH committees) institutions Use innovative approaches e.g. including an environment champion in the WASH Co.	Sustainability Accountability
Guidance The adverse impact of WASH activities on the natural ecosystem can interfere with natural habitats and lead to loss of biodiversity. Safeguarding of natural ecosystems is crucial and where possible alternative areas and routes for WASH infrastructure should be sought to avoid unnecessary encroachment. Use of locally available/sourced materials in construction reduces the environmental impacts associated with transportation and distribution. However, some materials may have a low regenerative capacity, thus mitigation against over-extraction should be done. Different materials should be selected for construction to reduce dependency on a single source. Prioritise reusing, recycling and repurposing existing materials.			
Build back better +ive measures			
Long term approach	Disaster (drought, floods) resilient infrastructure "Humanitarian-development-peace" nexus approach	Requires heavier capital investment Will require proper planning and synergy between humanitarian and development donors (and actors) in pursuing a long-term approach.	

03. Training, tools and resources (*Work in progress*)

1. Take DG-ECHO's "Greening Humanitarian Aid" here: https://else.dgecho-partners-helpdesk.eu/learn/course/227/play/1699:158/greening-humanitarian-aid.
2. Apply for DG-ECHO's "Minimum Environmental Requirements and Recommendation in Humanitarian Aid operations" here: https://www.dgecho-partners-helpdesk.eu/learning-and-trainings
3. The Nexus Environmental Assessment Tool (NEAT+): https://neatplus.org/access
4. Green Recovery and Reconstruction Toolkit (GRRT) - Water and Sanitation (Module 7): https://envirodm.org/green-recovery/
5. Sustainable Sanitation and Water Management (SSWM) Platform: https://sswm.info/perspective/humanitarian-crises-perspective
6. Sector Environmental Guidelines: Water and Sanitation: https://www.usaid.gov/sites/default/files/documents/1860/Water_SEG_2017.pdf
7. EHA Connect WASH Page: https://ehaconnect.org/clusters/water-and-sanitation-wash/
8. Faecal Sludge Management: Systems Approach for Implementation and Operation: https://www.un-ihe.org/sites/default/files/fsm_book_lr.pdf
9. Greywater Management in Low and Middle-Income Countries: https://sswm.info/sites/default/files/reference_attachments/MOREL%20and%20DIENER%202006%20Greywater%20Management.pdf
10. Green Logistics Guide: https://dlca.logcluster.org/display/LOG/Green+Logistics/
11. Environmental Checklist of Cash based interventions: https://www.unhcr.org/5fca4b5e4.pdf
12. Compendium of good practices for a greener humanitarian response: https://www.urd.org/en/project/compendium-of-environmentally-friendly-practices/
13. Solid waste management: https://www.oxfamwash.org/en/sanitation/solid-waste
14. Excreta Disposal in Emergencies: https://www.oxfamwash.org/en/sanitation/excreta-disposal

QUESTIONS?

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