Environmental Guidance for Minimizing Impacts of Humanitarian Action

The main environmental issues in the context of Jordan are air quality, soil, biodiversity and scarcity of water resources and hazardous waste management. To ensure sustainable humanitarian assistance program, any humanitarian intervention should give due consideration to these issues throughout the program management cycle.
This Environment Guidelines (EG) is a technical reference material is compiled from similar works done by UN Environment and other institutions. It aims at giving specific and general mitigation measures for impacts from humanitarian projects. It covers the following key sectors i.e. Health, WASH, Shelter and NFI, camp management, Protection, Energy, Transportation. The guideline has three sections, i.e. specific, general and enhancement.

The first section covers the potential impacts and the corresponding mitigation measures for sector specific projects while the general section addresses general environmental issues which have connection with the specific sector projects. The final section of the guideline, suggest the enhancement measures / actions that can improve the overall quality of the project.

Water, Sanitation and Hygiene	
Potential Environmental Impacts	**Impact Mitigation Actions**
Drilling/ Construction of borehole, wells or other water point ✓Construction material for water supply superstructures could potentially impact forest cover if using non-environmentally friendly material ✓Over-use of water, increasing pressure on water resources. ✓Risk of over-pumping if water outtake for human use is not coordinated with possible outtake from other water point for livestock watering or irrigation purposes. ✓Risk of contamination of open water source for human use, from livestock using the same source. ✓Installation of water points, such as hand-washing facilities, causing overuse of water due to improper design.	✓Borehole drilling should always be preceded by an assessment on the sustainable yield potential of water in the area. Coordinate with the Ministry *Water and Irrigation* for ensuring continuous monitoring of the groundwater. Groundwater levels should be monitored by organizations managing groundwater extraction to ensure that natural recharge rate is not exceeded by over-pumping. ✓Raise local awareness on importance of water conservation, and on Integrated Water Resource Management (IWRM) to ensure sustainable water supply. ✓Promote new ideas to water management and water-saving techniques, such as rooftop rainwater harvesting, grey water reuse and eco sanitation. ✓Reuse grey water from the runoff of hand pumps and wells, for example to irrigate a vegetable garden. Good drainage also reduces the transmission of water borne diseases. ✓Promote new innovative technologies, such as solar-driven pumps, or solar panels for lighting. ✓Involve communities in the preparation and implementation of **drought mitigation measures and planning** if there is a risk of groundwater depletion. These should include: (i) Water surveys with community consultations, (ii) Community supported contingency plans for allocation of water if available resources are diminished, and (iii) plans should include identification of options for the development of alternative water resources

Construction of Sanitation Facilities such as latrines ✓Construction material for superstructures for water supply could potentially impact forest cover/water supply if using non-environmentally friendly material. ✓Improper liquid waste management and drainage could risk contamination of soil and water	✓ Timber use should be significantly reduced in the construction of latrines. Where possible, pit latrines could be fitted with concrete slabs, which eliminates the need for secondary wooden slabs or supporting beams, and facilitates easy cleaning. ✓ Promote Eco sanitation **Note:** for construction of a latrine or other supra-structure, please refer to the general section
WASH in Schools and CFSs ✓Deforestation because of un environmentally friendly material such as red bricks or other unsustainable use of timber for supra-structures for WASH facilities, such as latrines. ✓Running taps causing overuse of water and standing water due to improper design of handwashing facilities such as taps that children cannot use properly. ✓Open defecation due to improper design of latrines and squatting plates. ✓Solid waste, including plastic bags is both an environmental hazard as a health and safety risk for children.	✓Ensure child-friendly design of hand-washing facilities, enabling proper use. This would include taps that can easily be turned on and off or, if necessary, including a small (safe) foot stool for children to be able to reach the taps. ✓Reuse grey water from hand-washing facilities for watering of school vegetable garden or trees. ✓Ensure child-friendly design of latrines, with squatting hole of appropriate size to allow safe use by children. ✓Introduce Solid Waste Management (SWM) in schools, providing waste bins and cleaning kits, and have cleaning days. *TIP: Plant low-maintenance, drought resistant, live fence around school ground* *TIP: Include Environmental Awareness in School Clubs combined with active- ties such as tree planting or small garden on school grounds.* **Note:** for construction of a latrine or other superstructure, please refer to the general section

Note: the scale of activities in a project will determine the coding of the project. To get a positive coding (+), this/these specific activities need to be mitigated against.

Health	
Activity /Potential Environment Impacts	**Impact Mitigation Actions**
• Improper management of healthcare waste • Expired medicines or chemicals required for health protection (e. g. water disinfection, control of vector diseases) • Soil and water contamination- ash from incineration, chemicals etc • Transmission of diseases from infectious wastes e.g. bandages, gloves, sharps or body tissues • Vector breeding due to blocked drainage channels, causing standing water	• Ensure source segregation, collection and safe disposal of health care waste from hospitals, mobile clinics and while transporting biological samples **Link**: http://www.healthcarewaste.org/

Education	
Activity / Potential Environmental Impacts	**Impact Mitigation Actions**
• Missed opportunities to foster environmental stewardship as an integral part of education and training activities	• Environmental education and awareness components should be integrated into community sensitization programmes and school curricula in IDP and refugee camps. Components for inclusion should include: deforestation and sustainable use of natural resources; improved animal husbandry practices; water conservation management; and improved general environmental awareness • Environmentally sustainable construction and procurement should be ensured for the construction of schools and education facilities • Tree planting can be carried out in schools and garden spaces, areas of high erosion risk, coastal areas and riverbeds

Shelter, Non-Food Items (NFI)	
Activity /Potential Environment Impacts	**Impact Mitigation Actions**
• Unsustainable or expensive supply of shelter construction materials • Inappropriate shelter design and selection of site for a specific need, community or culture, leading to misuse or non-use • Unsustainable use of timber in shelter construction leading to deforestation and soil erosion • Improper disposal of construction and packaging wastes	• Shelter location should be guided by an environmental assessment to avoid disaster prone locations. Local people must be consulted to ensure acceptance of shelter solutions • Minimize the impacts on forest resources through sustainable sourcing and creation of community woodlots

Camp Coordination and Management	
Activity / Potential Environment Impacts	**Impact Mitigation Actions**
• Land compaction and degradation, erosion • Vegetation clearance and biodiversity loss • Unsustainable supply of natural resources (e.g. timber, fuelwood sand, stones or gravel) • Improper decommissioning of camps and pit latrines • Improper disposal of construction and packaging wastes	• Conduct a Rapid Environmental Assessment (REA) and implement Community Environmental Action Plan (CEAP) for all planned and existing camps • When closing camps, take measures to address significant environmental damage that may have accrued during the lifespan of a camp – both within the immediate environs as well as the broader landscape of a camp, including: - removing immediate and obvious hazards from the area - repairing- to the extent possible – any serious level of environmental degradation that may have taken place - leaving the site in a state that would allow local people to engage directly in subsequent activities for e.g. agriculture if that was the land's former use

Protection	
Potential Environment Impacts	**Impact Mitigation Actions/ Measures**
• Environmental degradation and sexual and gender based violence **during fuel wood collection** • Inappropriate siting of toilets may make women and girls more vulnerable to attack, especially during the night • Waste generation	• Reduce need for fuelwood for domestic energy by promoting alternatives sources of fuel, food that does not require cooking, or fuel-efficient stoves • Ensure that women and girls feel and are safe when using the toilets provided • Where possible, communal toilets should be provided with lighting, or households provided with torches

FOOD SECURITY & LIVELIHOODS	
Activity/ Potential Environment Impacts	**Impact Mitigation Actions/ Measures**
<u>Drilling/construction of boreholes and wells; water irrigation schemes</u> ✓Use of non-environmentally friendly material for supra-structures for water supply could potentially impact forest cover and water supply. ✓Risk of over-pumping if water outtake for human use is not coordinated with outtake from other water point for livestock watering or irrigation purposes. ✓Risk of contamination of open water source for human use, from livestock using the same source. ✓Location of livestock water points will have an impact on the ground cover and risk of overgrazing.	*Note: for drilling of boreholes and any other activity that will comprise use of water, refer to previous box "Water and Sanitation"* *Note: for any construction activity including supra-structure for water outtake points, please refer to previous box "Construction/Rehabilitation"*
<u>Income-Generating Activities.</u> ▫ Depending on what type of IGA the potential environmental impact will differ.	✓Conduct environmental activities such as tree planting, camp clean-up and environmental rehabilitation through food/cash for work. Though temporary, this will increase engagement of displaced and host populations to engage in environmental activities. ✓Support production of environmentally friendly construction material such as SSB as an income-generating activity by vocational training ✓Production of weaved bags, maybe even from recycled plastic sheeting, could be an income-generating activity. Other items that could be produced locally could be mats and baskets. ✓Train and encourage composting of biodegradable waste, to be used as fertilizer of vegetable garden or sold.
<u>Construction Activities.</u> ▫ Construction of buildings, market stalls etc could potentially impact forest cover and water supply if using non-environmentally friendly material.	*Note: for any construction activity such as market stalls, offices etc, please refer to previous box "Construction/Rehabilitation"* ✓Support production of environmentally friendly construction material such as SSB as an income-generating activity by vocational training ✓Train on environmentally friendly building techniques, and support market to support a more widespread adoption of environmentally friendly solutions. ✓Planning should consider the local implications of mass production of shelter materials (e.g. water requirements for mud brick/concrete).

FOOD SECURITY & LIVELIHOODS cont…	
Agricultural support ✓Risk of soil and water contamination due to use/overuse of fertilizers and insecticides. ✓Improper farming techniques causing loss of top soil and nutrients, reduced water retention. ✓Planting of crops on unsuitable soil type could cause loss of nutrients and overuse of water.	✓Agro-based communities should be assisted with improved yielding seed varieties suited to the region. ✓Support and train on environmentally friendly farming techniques, such as rotational crop farming, use of ecological fertilisers and insecticides, and multi-crop production. ✓Support seedling nurseries as part of rehabilitation of degraded communal rangeland. Promote livelihoods related to sustainable forest management and creation of community woodlots ✓Training on soil and water conservation, farming techniques, management of natural resources.
Provision of livestock ✓Overgrazing and erosion as a result of high number of ruminants. ✓Risk of contamination of water sources for human use.	✓Assess the area where livestock will be grazing and watering, and follow up with necessary awareness raising and training to herders and farmers on sustainable land use, and sustainable management of water and other natural resources. ✓If necessary, support with (environmentally friendly) fencing around wadis or water sources used by humans. ✓Support with protective fencing to avoid livestock from grazing in forests or any other sensitive area.
Livestock drug supply & vaccinations ▫ Potential soil and water contamination from livestock drug and vaccination waste if not properly handled.	▫ Cooperate with Ministry of Environment to ensure proper disposal of equipment used for vaccination and treatment and leftover drugs

Transportation and Energy	
Activity/ Potential Environmental	**Impact Mitigation Actions/ Measures**
• Improper disposal of construction and packaging waste • Improper disposal of fuel, waste oil and tires • Procurement of goods produced through unsustainable practices • Charcoal preparation contributing for deforestation and biodiversity loss due to illegal woodcutting	• Where applicable, promote the use of oil spill kits and ensure proper hazardous materials management • Ensure sustainable resource extraction for road and air strip construction • Promote and include fuel efficient cooking techniques such as pre-soaking beans, sheltering cooking fires, etc. in trainings. • Promote and distribute fuel-efficient stoves. • Promote new innovative technologies, such as solar-driven pumps, or solar panels for lighting. • Local procurement should be supported, provided that the use of wood for example for production of benches and other pieces of furniture is done in an environmentally sustainable manner. • Reduce packaging material to the extent possible and promote SWM. Discourage use of plastic bags. Consider replacing plastic bags with weaved bags or buckets with lid for distribution of NFIs and food stuff. • For disposable items, aim to find environmentally friendly/biodegradable detergents, washing liquids etc.

General Environmental Issues

Site Selection , Site Preparation and Decommissioning	
Activity /potential environmental impact	*Mitigation*
Site/shelter location & Site planning ✓Location close to areas of natural resources, such as forests and forest reserves, open water courses or fragile ecosystems should be avoided/ mitigated. Potential impact includes deforestation, erosion and pollution of water sources. Overuse/damage of resources can be a contributing cause to conflict. ✓Location in or too close to disaster prone areas (floods etc) ✓Disruption of natural water schemes	✓When possible, avoid location of *large* site near to forest reserves or other sensitive and/or protected area. ✓Identify natural resources in surrounding areas that might be negatively impacted and mitigate with additional activities. Examples are: provision of Fuel Efficient Stoves, provision of shelter frames and/or support to trees/forest plantation programme for reduced use of wood; and alternative water harvesting/water saving methods for reduced water use. ✓Shelter location should be in a safe setting with adequate space for latrines, water points, washing areas etc. If possible, consider extra space for compost, fruit trees, vegetable garden, construction for reuse of grey water. ✓Use existing settlement patterns and topographical features to minimize adverse impact on the natural environment. ✓Assess groundwater availability. ✓Assess drainage also during rainy season to avoid flood prone areas. ✓Minimize the impacts on forest resources through sustainable sourcing and creation of community woodlots to meet the needs of the affected people
Preparation of land ✓Removal of root-system and vegetation cover leading to soil erosion and decrease of water retention/absorption. Over time, soil erosion can increase desertification rate. ✓Removal of bushes and trees cover. ✓Disruption of natural drainage schemes.	✓Avoid heavy machinery for land/ground preparation and avoid radical clearing of ground cover. ✓Protect bush and trees cover to highest extent possible. ✓Consider topography and follow contour lines. ✓Avoid levelling out natural drainage schemes unless properly planned for.
Decommissioning of shelter ✓Safety risk from unfilled latrines, erosion gullies and uncovered wells. ✓Depleted vegetation or denuded sites that may develop erosion gullies.	✓Restore land and vegetation to reduce risk of further soil erosion. ✓Collect and reuse any leftover material that could be used for new shelter construction. *Note: all aspects of camp decommissioning should be accounted for already in the EIA. Camp construction and decommissioning is a C project.*

CONSTRUCTION/REHABILITATION *FOR WASH INFRASTRUCTURE PLEASE REFER TO WASH SECTOR GUIDANCE*	
Activity/ potential environmental impact	**Mitigation**
Construction and Rehabilitation works - Shelters and other structures such as schools and classrooms, CFSs, offices and superstructures for water and sanitation facilities. ✓Unsustainable use of timber and woodfuel, and use of non-environmentally friendly material such as red brick, leading to increased pressure on forest resources. ✓Environmental damage may be caused by unsustainable sand and gravel extraction. Excavation may also create holes in the ground which could be a safety risk. ✓Excessive use of water related to production of non-environmentally friendly material such as red bricks. ✓Soil erosion as a result of loss of vegetation cover around shelter settlements. ✓Insufficient material for construction or shelter support structures such as poles, contributing to deforestation due to illegal woodcutting. ✓Inappropriate design for a specific need, site, community or culture, leading to misuse or non-use of shelter. ✓Waste generation due to inadequate disposal of construction and packaging material. **Provision of additional shelter material and roofing, and smaller structures (market stalls etc).** ✓Unsustainable use of local material, such as grass for thatching and roofing, leading to reduction of vegetation cover. ✓Insufficient material for construction or shelter support structures such as poles, contributing to deforestation due to illegal woodcutting.	*Note: for location of a shelter, school or other type of building, please refer to above box "Site/shelter location & Site planning"* ✓Locally available shelter material is recommended, provided that it is not impacting negatively on the local/regional environment. Material such as grass, timber and soil can be considered if re-planting and soil excavation is done in a sustainable and responsible way. ✓Plan construction to coincide with harvesting season when thatching materials are available, ensuring that natural materials are harvested at the right time of the year to ensure sustainability of future harvests. ✓Use environmentally friendly material thus ensure sustainability ✓Planning should consider the local implications of mass production of shelter materials (e.g. water requirements for mud brick/concrete). ✓Explore possibility to reuse construction material if available. ✓Construction waste should be recycled or properly disposed of. ✓Train communities in environmentally friendly house construction. *Link: (IASC Matrix on fuelwood)* http://postconflict.unep.ch/humanitarianaction/documents/02_02-04_02-03.pdf ✓Supply shelter materials, including those brought from other areas, from sustainable sources, and of good enough quality to allow reuse when transitional shelter is upgraded or permanent shelter are built. ✓When only part of the materials for a basic shelter is provided (e.g. plastic sheeting), assess and mitigate any potential impact on the local economy or natural environment of other materials needed (e.g. timber poles for framing). ✓Provision of environmentally friendly and durable material such as steel for roofing; metal frame (low-maintenance, durable, easy to disassemble and transport). These use less wood in comparison to the wooden frame shelters. ✓Ensure that local materials such as grass and bamboo used in construction are sourced sustainably to limit environmental degradation. ✓Construction to be planned to coincide with harvesting season when thatching materials are available. Exploring possibility to reuse construction material if available.

ENVIRONMENTALLY ENHANCING ACTIVITIES

- ✓**Environmental Education and Awareness** should be integrated into community sensitization programs and school curricula, as well as in IDP and refugee camps. Increased knowledge and understanding is a prerequisite for sustainability of projects and for environmental protection. Components should include: deforestation and sustainable use of natural resources; water saving techniques; improved animal husbandry practices; water conservation management; improved general environmental awareness.
- ✓**Tree planting** on household and camp/community level. Support tree planting in schools, CFSs, health facilities which also contributes to reducing local temperature, lessens dust production and provides shadow. Use grey water from handwashing facilities for extra water use.
- ✓Establishing **tree/seedling nurseries and community gardens** could be an income generating activity.
- ✓Support **Solid Waste Management** systems both on household level, community level and in schools, CFSs, health facilities etc. 3R's: Reduce, Reuse, Recycle.