Water, Sanitation and Hygiene (WASH) Environmental Considerations

When working on water, sanitation and hygiene (WASH) projects after disasters it is important to consider the environment throughout the project cycle. Projects with good environmental planning and management help reduce short-term risks to those affected by the disaster, as well as supporting disaster risk reduction and reducing exposure to natural hazards in the future, and hence decreasing household and community vulnerability.

Nepal's legislation requires compliance with environmental regulatory frameworks at the national and local levels as described below. At the international level, the *Sphere Handbook, The Code of Conduct for The International Red Cross and Red Crescent Movement and NGOs in Disaster Relief,* and the *Sendai Framework for Disaster Risk Reduction* address the need to prevent over-exploitation, pollution, and degradation of the environment, and encourage sustainable use and management of natural resources.

This guidance is designed for humanitarian workers, government officials, non-government organization staff, community groups and private sector operators involved in WASH relief and reconstruction.

Consultations

- Municipal water authority and water operator
- Community forestry manager
- Department of Forests, and Department of Soil Conservation and Watershed Management
- Department of National Parks and Wildlife Conservation
- Department of Water Supply and Sewerage
- KUKL
- NWSC

Water supply tank build to help preserve water
© WWF Nepal, Hariyo Ban Program/ Nabin Baral

1. Emergency water and sanitation Provision

a. Avoid distributing single-use bottles of water when re-usable storage containers would be a feasible alternative – this helps avoid accumulation of waste plastic in the environment.
b. Select emergency latrine sites away from waterways, drinking wells and other sensitive natural features to avoid contamination.
c. If chemical toilets are used, the sludge should be disposed only at designated places, strictly according to safety standards to avoid contamination and pollution.
d. All emergency toilets should be safely decommissioned when internally displaced people return home or move to permanent or intermediate shelters. Sludge, detergent containers and sanitary waste from toilets should be considered as hazardous waste and disposed of properly and safely.

2. Water supply planning and design

a. Many water sources changed as a result of the 2015 Nepal earthquake – some stopped flowing, some increased in flow, and in some places new water sources appeared. Take these changes into account when designing WASH project reconstruction, and avoid over-exploitation of water resources, including springs and groundwater resources.
b. WASH interventions should be designed to reduce or avoid conflict among water users. Undertake community consultation to understand cultural and traditional practices regarding local water use, including the needs of women and marginalized people. Take into account upstream and downstream users, and flows needed to maintain ecosystems.
c. Follow principles of Integrated Water Resource Management in reconstruction, promoting protection of recharge areas and spring sources, and sound land use in water catchments. Build in measures to promote climate resilience, taking into account likely increases in climate extremes (such as more intense rainfall, increasingly erratic rainfall patterns, and worse droughts).
d. Promote energy efficient/alternative energy technologies such as solar powered pumping to reduce or avoid greenhouse gas emissions.
e. Follow the National Drinking Water Quality Standards to ensure water quality, and implement the Water Safety Plan approach.Use hazard-free chemicals for water treatment whenever possible; if this is unavoidable, refer to the Material Safety Data Sheet for the chemical and strictly follow safety standards for use and disposal.
f. Water efficiency at household level is an essential component of responsible water supply planning. Encourage water use efficiency through water saving devices and behavior change, and promote rainwater harvesting, fog water harvesting, groundwater recharge and multiple-use systems where feasible.
g. Includewater saving measures in the design of centrally planned reconstruction schemes or public buildings (e.g. water saving faucets, dual flush cisterns).
h. Improve public awareness on effective water saving and household level water reuse techniques.

Tank to harvest rain water
© WWF Nepal, Hariyo Ban Program/ Nabin Baral

3. Sanitation planning and design

a. Select appropriate and safe sanitation methods according to the site conditions, climate, groundwater level and sanitation practices of the community. Consider a wide range of technical options when selecting a method – e.g. onsite ventilated improved pit latrines, septic tank and soakage pits, bio-filters, urine diversion dehydrated toilets, decentralized wastewater treatment systems, and constructed wetlands.
b. Avoid contamination of water bodies, ensuring that latrines are sitedat least 30m horizontal distance awayfrom water sources and the bottom of the pit is at least 2 m higher than the groundwater table.
c. Avoid using chemical treatment methods for sewage treatment.
d. Properly plan for sludge collection, treatment and disposal with expert advice. Never dispose sludge in open landfills or water bodies.
e. Household solid waste disposal should be carefully planned to avoid health and environmental hazards – including dumping in sensitive sites such as waterways or wetlands. Incorporate principles of 'reduce, reuse and recycle' as much as possible. Promote composting for home gardens and biogas production where appropriate.
f. Promote small-scale recycling industries at community level (e.g. paper, plastics).
g. Treat waste from health care facilities such as hospitals and clinics separately; ideally hazardous medical waste should be autoclaved; do not burn it openly, or dump it in the environment.

4. Construction

a. Provide adequate training in health, safety, and environment for construction workers, especially if communities are involved in the reconstruction process. Ensure that women and minority groups are included in the work force.
b. Ensure that construction meets quality standards.
c. Select construction materials to minimize environmental impacts *(see Building Material Selection and Use: An environmental guide)*. Ensure that construction materials are used efficiently to avoid duplication and waste.
d. Ensure that construction waste, including hazardous material, is disposed of safely in designated areas in consultation with local authorities; prohibit dumping in waterways and wetlands.
e. Retain vegetation cover as much as possible on construction sites for its economic value, shade, and protection from landslides.
f. Produce native tree seedlings for reforestation/ afforestation and/or encourage natural regeneration in water catchments.
g. Train local communities in recharge pond construction and use of bioengineering techniques for gully and small scale landslide treatment around water sources.
h. Ensure that natural drainage patterns are maintained as far as possible; drain construction sites carefully and avoid causing erosion or siltation of streams and rivers.

5. Operation and maintenance

a. Include sustainability plans for all WASH interventions in consultation with the community, especially women. Women's roles in maintaining water supplies and wateruse are closely linked with household welfare, including specification of responsibilities for operation and maintenance (e.g., community water committees).
b. Provide technical training for selected community members on safe and environmentally responsible operation and maintenance of WASH facilities.
c. Launch WASH awareness campaigns at community level, and encourage people's participation for economic, health and environmental benefits.

Applicable laws and regulations in Nepal

- Environmental Protection Act and Rules 1997
- Water Resources Act 1992
- Drinking Water Supply Rules, 1998
- National Drinking Water Quality Standards 2005
- Solid Waste Management Act 2011

References

- Environmental Best Practice in Emergency WASH Operations.http://washcluster.net/
- Green Recovery and Reconstruction Toolkit: http://green-recovery.org/
- The Humanitarian Charter and Minimum Standards in Humanitarian Response (Sphere Handbook). The Sphere Project 2011. www.sphereproject.org/handbook/
- TheCode of Conduct for the International Red Cross and Red Crescent Movement and NGOs in Disaster Relief. http://www.ifrc.org/Docs/idrl/I259EN.pdf
- Sendai Framework for Disaster Risk Reduction 2015-2030. United Nations.http://www.unisdr.org/we/inform/publications/43291
- Nepal Earthquake 2015: Rapid environmental assessment. Ministry of Population and Environment. www.wwfnepal.org
- Building Material Selection and Use: An environmental guide. Hariyo Ban Program, WWF Nepal, Kathmandu, Nepal.www.wwfnepal.org
- Nepal Earthquake 2015: Post disaster needs assessment. National Planning Commission, Kathmandu, Nepal. http://www.npc.gov.np/en/download/major_reports
- Nepal Earthquake 2015: Post disaster recovery framework 2016-2020. National Reconstruction Authority, Kathmandu, Nepal. http://www.np.undp.org/
- Post Disaster Needs Assessment for Hazardous Waste Especially Health Care Waste Management in Nepal. Center for Public Health and Environmental Development, Kathmandu.
- DWSS (2013); Water Safety Plan: Guidelines for Implementation GoN (2005), National Drinking Water Quality Standards and Implementation Directives

WWF Nepal
PO Box: 7660, Baluwatar, Kathmandu, Nepal
T: +977 1 4434820, F: +977 1 4438458
Email: hariyobanprogram@wwfnepal.org, info@wwfnepal.org
Website: www.wwfnepal.org/hariyobanprogram

Disclaimer: *This briefing sheet is made possible by the generous support of the American people through the United States Agency for International Development (USAID). The contents are the responsibility of WWF and do not necessarily reflect the views of USAID or the United States Government.*