

# Nepal Education Cluster

## नेपाल शिक्षा समूह

### Guidance Note: Environment in the Emergency Education Response

The earthquakes in April and May of 2015 have had a devastating impact on the facilities and infrastructure in the education sector. Structural Assessment data indicates that in the 11 affected districts outside Kathmandu valley, 67% of classrooms (32,000) are unsafe for use. As a result, a large-scale education in emergencies response is under way, providing temporary classrooms, emergency learning supplies and teacher training on psychosocial support and life saving messages to 14 of the most affected districts.

Given the scale of the response, the broad humanitarian needs, Nepal's unique geography and multi-hazard context, environmental issues are a priority cross-cutting issue that all sectors need to address.

### Why is the environment an important as part of the emergency education response?

A critical component of saving lives and reducing risk after a disaster includes work to ensure that the natural resources that form the basis for human life and livelihoods are restored and responsibly managed for the future. Clean air, water, forests and soil are essential for human health (preventing malnutrition and disease) and well-being (providing the raw materials for economic development and healthy living conditions, as well as reducing the risk of floods and landslides).

**Do no harm**—As education actors we have the responsibility to ensure that our humanitarian interventions do not damage the environment and indeed actively address environmental sustainability to ensure the communities we work with, and the natural resources which they depend on, are not put at further risk because of the disaster recovery efforts.

**Build back safer**—Our work should aim to “build back safer” so that we reduce disaster risks and increase the resilience of communities, and addressing environmental considerations is one part of this work. Ensuring that our emergency response promotes environmental sustainability and resilience will mean communities are



less vulnerable to future environmentally-linked risks. Education has a critical role to play in ensuring children, youth and their families are aware of key environment issues and are able to keep themselves and their environments safe and healthy.

**It's the law**—Nepali law 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 Hyogo Framework for Action address the need to prevent over-exploitation, pollution, and degradation of the environment and encourage sustainable use and management of ecosystems.

**It's good practice**—Environment considerations should be factored in to all parts of the programme cycle—from assessments and project design through to implementation, and monitoring and evaluation. Cost benefit analysis often shows that environmentally friendly building design is also cheaper and more sustainable. We must also consider environmental issues throughout our response and look for opportunities to influence the construction process from an environmental perspective as we move from immediate relief through to longer-term recovery.



Damage caused by the earthquake in Buddha Secondary School, Gorkha  
© Chhang Dorje Lama/ National Trust For Nature Conservation (NTNC)

## Creating safe and sustainable school environments

Given the scale of the destruction of school buildings and other facilities, the emergency education response has a large construction component, working within school compounds to make safe learning environments for earthquake-affected children. Debris is being cleared and sites prepared for temporary or semi-permanent classrooms. Following government designs, many partners are establishing temporary classrooms using locally available materials (often bamboo or wood) for the main structure, with tarpaulins or corrugated iron (CGI) for roofing. WASH services for schools are being restored or provided as part of the education response. Key issues to consider from an environmental perspective:

### Key considerations and practical tips are

#### Safe debris and disaster waste management and recycling

- Many schools with collapsed buildings will need to safely deal with debris removal and management. Building demolition should be undertaken following safety guidelines and debris removed to an agreed location that has been identified as a safe area, away from water sources, settlements and protected land.

- Wherever possible, building materials can be sorted and stored so that they can be recycled, reused or repurposed as part of safe reconstruction efforts. Reuse and recycling of tarpaulins should also be practiced if at all possible. If tarpaulin is not being reused, it is disposed of in an appropriate waste site.
- Separate broken CFL bulbs, tube lights, batteries, paints and paint containers, any toilet cleaning chemicals or mercury thermometers from rubble while demolishing school buildings. These are all hazardous waste which can harm people and the environment. Store hazardous waste securely until safely disposed.

**Did you know...** it is estimated that tarpaulin takes over 450 years to naturally decay.

#### Additional resources

- Planning Centralised Building Waste Management Programmes in Response to Large Disasters. Shelter Centre, ProAct Network and Disaster Waste Recovery.
- Technical Guide for Debris Management: the Haitian Experience 2010-2012. UNDP. 2013.
- Guidance Note: Debris Management. UNDP, 2013.
- Plastic Sheeting: A Guide to the Specification and Use of Plastic Sheeting in Humanitarian Relief. International Federation of Red Cross and Red Crescent Societies, and Oxfam. 2007.



Sand extraction from Trisuli River  
© WWF Nepal, Hariyo Ban Program/ Nabin Baral

### Site selection

- When selecting sites for TLCs (or semi-permanent classroom construction) care should be taken to ensure the site is safe from natural hazards such as potential locations for landslides and flooding as well as dangers from unsafe large buildings nearby. Care should also be taken that the site is not close to an ecologically sensitive or protected area. Areas with wildlife should be avoided so as to minimize human-wildlife conflict.
- When preparing a site for construction, retain vegetation cover around and uphill from the site as much as possible, for water supplies, natural resources, conservation value, shade, and to help reduce risks of landslides and floods. In cold climates, site new classrooms to face south so that rooms have the most light and heat during the winter.

### Additional resources

- Green Recovery and Reconstruction: Training Toolkit for Humanitarian Aid – Module 4 on Site Selection. WWF and American Red Cross. 2010.

### Sourcing of materials

- Replenishable, sustainable local materials should be used when possible to construct temporary classrooms. When sourcing timber, follow Nepali laws

and regulations, including community forestry rules. Ensure that timber is collected from the national and/or community forest in compliance with the provisions of the Forest Act 1993 and Forest Regulations 1995.

- Procure sand, gravel, boulders and other construction materials from legal areas that do not cause increased safety and environmental risks such as landslides, increased flood hazards, down stream sedimentation or degradation of wetlands.

### Additional resources

- Timber: A Guide to the Planning, Use, Procurement and Logistics of Timber as a Construction Material in Humanitarian Relief. IFRC, UN/OCHA and CARE International. 2009.
- Shelter and Environment: An Overview. Shelter Cluster, Philippines. 2014.
- Building Material Selection and Use: An Environmental Guide. WWF Nepal/Hariyo Ban Program. 2016.
- Green Recovery and Reconstruction: Training Toolkit for Humanitarian Aid–Module 5 on Materials and the Supply Chain. WWF and the American Red Cross. 2010.
- Green Recovery and Reconstruction: Training Toolkit for Humanitarian Aid–Module 6 on Construction. WWF and the American Red Cross. 2010.

**Did you know...** a single tree can absorb more than one ton of carbon dioxide in its life span and produces enough oxygen for a family of four.

**Did you know...** Bamboo is a very useful building material. It grows very fast and is light and flexible so it is safer than many other materials in earthquake areas.

### Replenishing material supplies

- School buildings that need timber or bamboo building materials should plan to oversee the planting of at least twice the number of trees that are used in the construction. Work with the District Forest and Wildlife Officer, Community Forest Users Groups or environment organizations to select the right kinds of trees for planting and planting sites.
- Try to plant trees in severely degraded areas and in areas above Landslide slippage areas. If possible, plant tree saplings in areas with already established half-grown and fully grown trees. This will provide a more natural habitat and encourage wildlife species to thrive there as well. Select varied species of trees that are indigenous to the area for better survival.
- Keep the area of planting protected from livestock and minimize extraction of resources (fodder, medicine, honey etc.) for a few years.
- Monitor the forested area in the long term and experiment with different combinations of tree saplings. It is not enough just to plant a sapling; you must take care of it for some time as it grows into a tree. The school community can be engaged in this ongoing care (see below).

### Environmentally friendly WASH for schools

- Care should also be taken when selecting sites and constructing latrines for school communities to ensure that there is no overflow or infiltration into ground water. In areas near a water source, designate a boundary and keep the area clean of waste. Education partners are encouraged to consult with WASH Cluster partners for technical support if they are concerned.
- If the school has piped water from a local source, look for opportunities to help protect the recharge area above the source, restoring or maintaining forest there if possible.
- Schools can also practice rain water harvesting, installing drain pipes and water tanks to collect rainwater for use in school gardens.
- Gender-friendly toilets including hygienic menstrual waste disposal is essential. If possible, train adolescent girls how to make and use reusable menstrual pads.

**Did you know...** a 10 square meter roof will take 30 minutes to harvest 10 liters of water during a down pour of 25 mm per hour.

### Additional resources

- Cleaning and Disinfecting Water Storage Tanks and Tankers. World Health Organization. 2013.
- Cleaning and Disinfecting Wells. WHO. 2011.
- Solid Waste Management in Emergencies. WHO. 2011.
- Excreta Disposal in Emergencies. Water and Engineering Development Center. 2007.
- Rainwater Harvesting from Rooftop Catchments. In: Source Book of Alternative Technologies for Freshwater Augmentation in Latin America and the Caribbean. UNEP. 1007.
- Water Filtration Manual. Oxfam. 2006.

### Greening the school compound

- In Nepal, school compounds are often surrounded by a brick or stone wall to designate the school's land. These walls may have collapsed or be in danger of collapsing due to earthquakes. Consider planting edges and trees around the school –this will be earthquake safe and the vegetation will capture dust from outside the school or from roads before it reaches the school buildings.
- In hot climates, use climbing plants (like bougainvillea) on fences or frames on the hottest side of the school buildings, leaving at least 15 cms from the wall, creating layer of cool air between the sunlight and the wall.
- Planting a “green roof” can also be considered, though care should be taken that planting is at an angle so rain water can drain. This should only be considered if the structure can safely withstand the significant weight of plants and soil. A green roof will cool down the building because the plants will absorb the sun's rays. Painting light colours on roofs can also make a big difference if green roofs are not a safe option. In the sun a black or dark roof surface can be 40 degrees hotter than a silver or white surface.
- Consider planting deciduous trees (trees that have leaves in the summer and none in the winter) on the south side to provide summer shade and winter sun.
- Schools can plant vegetable gardens. It is important from both a health and an environmental perspective to eat more leafy green foods. Growing vegetables will also help children learn about the interdependence of ourselves and nature and can be used as a learning opportunity (see below).



Vegetable gardens for health and environment  
© WWF Nepal, Hariyo Ban Program/ Nabin Baral

### Additional resources

- Beyond Firewood: Fuel Alternatives and Protection Strategies for Displaced Women and Girls. Women's Commission for Refugee Women and Children. 2006.

### Environmentally friendly waste management at schools

- To care for the environment and ensure the school compound is child friendly and hygienic, there should be work done to manage waste properly.
- Waste should not be burned inside school premises.
- The school compound and surroundings should be litter-free.
- Practice waste segregation in school with different colour-coding if possible: **Green** for food/ biodegradable waste; **Blue** for paper waste, **Red** for plastic waste. Recyclables such as paper, newspaper, exam papers or old books can be collected and sold to a recycling center. Revenue can be deposited in school environmental fund.
- Biodegradable waste can be composted in a designated area in the school compound (pile, drum or worm composting as suitable) and training provided for the school eco club or focal teacher on composting practices. Compost can be used for a school garden or shared with the community.

### Educating for environmental awareness and action

The environment sustains and gives us life, but it also has the potential to take life. Learning about the environment and how to sustainably interact with it is a key life skill for individuals, and might even be psychosocially useful as children come to terms with the power and impact that their environment has had on their lives as a result of the earthquake. Collectively, learning how to protect the environment is essential for sustainable development and disaster risk reduction and resilience.

“If you plan for a year, plant a flower, if you plan for ten years, plant a tree, but if you plan for a hundred years, educate the people” Kuan Zu, 5<sup>th</sup> Century Chinese Poet.

### Key considerations and practical tips

#### Use of local curriculum time

- The Nepali curriculum allows for 20% of time to be spent on subjects relevant to the local community. Encouraging schools to cover environment topics during this time could be very valuable.
- Topics to be considered: Energy conservation, Sustainable shelter, Conservation of trees and vegetation, Soil conservation, Wildlife conservation, Water and watershed conservation, Environmental health.

- Make use of local experts and knowledge. Invite farmers, Local Forest Users Group members or representatives from the District Forest Office to participate in teaching children.

### Integration into the curriculum

- There is compulsory course on "Health, Population and Environment" as part of the Nepali national curriculum in Grades 5-10. This course addresses a range of environmental issues in Nepal. It is highly encouraged that this course is not a theoretical classroom-based topic, but rather focuses on practical, hands-on work that involves expert community members, field observation and practice.
- Integration of environmental issues (see topic suggestions above) can also be integrated into traditional curriculum subjects such as maths, science, social studies, Nepali and English.
- Applying academic concepts to real-life examples in the learner's immediate environment can enhance relevance and quality of teaching.

### Mobilizing learners and the school community

- Many schools have active child clubs, who could be mobilized to address environmental issues. Establishing or strengthening Eco Clubs or encouraging WASH Clubs to address environment issues could be an excellent way to involve learners actively, and can often influence wider community attitudes and behavior.
- Child clubs can support efforts to green their school environment, keep their school compound clean and safe and share messages with their families and communities.

- The school community could be encouraged to prepare an Environment policy that is followed by students, teachers and any visitors. The policy could include: - do not throw litter in the school premises; - do not burn waste in the compound; - plastic-bag freezone; - do not smoke in the school or surrounding area; - clean toilet practices; - protecting plants and trees in the area; - protecting wildlife in the area, etc. Rules can be displayed on a sign board on the school compound.
- The school community could also be encouraged to establish a School Environment Fund with contributions from the school management, teachers and community members. The environment fund can be used to implement environment-related activities such as art or debate competitions, reforestation programme, gardening programme or prizes for teachers and students contributing to environmental conservation efforts.

### Special environmental events

- Use sacred or special school occasions or days like World Environment Day, National Sanitation Week, Earth Day or the School Anniversary Day to carry out environmental activities such as tree or bamboo planting (see above for practical uses for tree and bamboo planting).
- This provides an opportunity to engage the whole school community in environmental action, and can also provide benefits for the school compound.
- Use tree or bamboo planting as an opportunity for children to learn about their environment and how Plants function (root systems, oxygen production etc). These activities can be integrated into maths, science and social studies lessons (see above).
- Organize environmental competitions (e.g. art, essay or debating competitions) to raise awareness.

## Relevant Nepali laws, regulations and further resources

Green Recovery and Reconstruction: Training Toolkit for Humanitarian Aid (GRRT) (WWF and American Red Cross)

INEE Minimum Standards for Education: Preparedness, Response, Recovery (INEE) Has a few mentions of environment issues, particularly in the Teaching and Learning Standard on Curricula–page77.

Environment Marker Guidance Note (UNEP and OCHA)

Guidebook for Planning Education in Emergencies and Reconstruction–Chapter on Environmental Education (UNESCO IIEP)

Center for Environment Education Nepal Webpage (CEEN)

Our Environment: Taking Care of our Future Student Book (Environmental Foundation for Africa) From an African context, but quite relevant ideas

Resource Center on Mainstreaming the Environment into Humanitarian Action–Education Section (UNEP)

Nepal Forest Act 1993 and Forest Regulations 1995 (Government of Nepal)

Nepal National Parks and Wildlife Conservation Act 1973 (Government of Nepal)

Nepal Conservation Area Government Management Regulations 2000 (Government of Nepal)

Nepal Solid Waste Management Act 2011 (Government of Nepal)

The Education Cluster is led by the Department of Education under the supervision of the Ministry of Education and is co-led by UNICEF and Save the Children. Over 130 national and international organizations, government, UN agencies, and donors joined the Education Cluster response.

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The Hariyo Ban Program was pleased to collaborate with the Nepal Education Cluster and its partners on promoting environmentally sound practices after the 2015 earthquake.

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