



# GREEN RESPONSE: ENVIRONMENTAL QUICK GUIDE



## Acknowledgments

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# GREEN RESPONSE ESSENTIALS

## Environmental screening of all operations and projects

**Do a simple environmental screening** of all activities to identify and reduce any potential environmental impacts.



## Organisational level

**Ensure** that your organisation has appointed, and supports, an environmental sustainability focal point.

**Identify the main contributors** to the environmental footprint of your organisation, and areas and targets for improvement.

**Consider developing** an Environmental Policy and including environmental sustainability in your organisation's Strategy



## Supporting community environmental awareness

**Integrate environmental awareness** activities into projects and operations wherever possible, emphasising how environmental degradation affects livelihoods, health and wellbeing.



## Procurement

**Include environmental requirements** as part of standard purchasing procedures, and highlight these with suppliers.

**Include environmental criteria** in the specifications of standard relief items, their packaging, and transportation.



## Transport and logistics

As part of preparedness activities, **anticipate future needs** to enable better pre-stocking and allow for slower more sustainable shipping methods.

Use vehicle usage **monitoring tools** and guidance to help identify areas for improvement, such as reducing fuel waste from speeding and idle time.

**Consider the right vehicle** for the right need, and hybrid or electric vehicles where appropriate



## Construction

Wherever possible **minimise waste** by repairing and upgrading existing structures and actively recycling and reusing materials, including disaster debris.

Use **sustainable construction materials**. Avoid or minimise the use of materials that are produced or extracted in environmentally harmful ways, or that cause pollution.

**Design** structures and shelters to maximise energy efficiency through shading and passive ventilation, and integrate rainwater/greywater capture and solar power.





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Energy – for facilities

Always consider the use of **renewable energy sources**, such as solar, to help meet the energy requirements of a facility.

**Train staff** in energy efficient behaviours, such as turning off lights and computers and appropriate use of air-conditioners and heaters.



Water

Wherever possible connect to and strengthen **existing water supply** and sanitation systems. If constructing WASH facilities, avoid contaminating groundwater or overusing water sources.

Use **renewable energy** like solar to power water pumps, instead of generators.

**Never allow** any kind of treated or un-treated sanitation waste or wastewater to enter into freshwater systems such as rivers or lakes.



Waste

Always try to **reduce the waste** that are generated by activities, particularly single-use plastics. Wherever possible reduce the size and weight of packaging, and use reusable, recyclable or biodegradable materials.

**Promote finding value** in waste, both in communities as part of project activities and also in facilities. As a minimum waste should be segregated into organic, recyclable, and other.

Take special care with **safe disposal** of hazardous waste, especially sanitation, medical, and electronic waste; and chemicals and pollutants.



Energy – households

**Understand** how households cook their food and what they use for lighting, and promote ways to meet these needs more sustainably as part of projects and operations, like alternative fuels or enhanced cooking stoves.



Land

**Avoid erosion** issues by carefully managing construction and camp projects to maintain soil and ground cover vegetation.

Always explore the potential to **integrate ecosystem protection** and restoration into activities through the use of nature-based solutions.

Carefully consider **potential environmental impacts** of activities which promote agriculture, livestock, and fishing; promote sustainable agriculture, agroforestry, and water management.



Cash and voucher assistance

**Systematically integrate** environment into CVA assessments, policies, and strategies, including access to and costs of household energy sources.

**Promote sustainable** consumption choices through education and awareness raising.



# INTRODUCTION

## What is this document and how to use it?

This *Green Response Environmental Quick Guide* is intended to be a reference guide to help improve the environmental sustainability of the projects and humanitarian operations of Red Cross and Red Crescent National Societies. As part of the Green Response initiative this Guide aims to provide ideas and inspiration for more sustainable options that can improve the environmental impact of our work. This Quick Guide will be useful to all staff and volunteers but is particularly aimed at project managers and others working in Disaster Risk Management within National Societies. You do not need to be an environmental expert to use it.

This Quick Guide can be used during the planning phase of the project cycle, and will support the process of environmental screening. It provides ideas, solutions, and advice on the options available to project implementors to reduce any negative environmental impacts of the project, and maximise outcomes that could improve environmental sustainability. The Quick Guide can be used after doing environmental screening, or in conjunction with the results of a NEAT+ screening analysis (see [environmental screening](#) section below).

Although it is focused on the programming and humanitarian responses of National Societies, this Quick Guide also touches briefly on how a National Society can improve the environmental sustainability of their [whole organisation](#).

No guide can cover all the potential environmental considerations of Red Cross Red Crescent projects and identify all the available options to create better environmental outcomes. This Quick Guide provides some basic ideas and examples that Disaster Risk Management practitioners, project managers and their teams can use and modify to suit their needs. It is not intended that this document is read from beginning to end, but to be used as a reference during the project planning phase. The aim is not to fully alleviate all possible environmental impacts, but to improve the environmental management of each project and operation, while still meeting humanitarian objectives.

This document is not divided into the traditional humanitarian sectors, but instead into broader categories that reflect the cross-cutting nature of environmental sustainability. For instance, sustainable construction is not only relevant for Shelter specialists but also when building water and sanitation or health facilities; while the important topic of waste is a concern for everyone.

It should also be noted that environmental analysis, impact assessment and mitigation is a complex field. For large and complex projects or operations that are likely to have significant environmental impacts, or that are working within a particularly sensitive environmental context, expert assistance will be needed.

# What is Green Response and why is it important

The International Federation of Red Cross and Red Crescent Societies (IFRC) is promoting the systematic integration of environmental sustainability in our humanitarian work through the “Green Response” initiative. Green Response is defined in the [IFRC Secretariat Environmental Policy \(2019\)](#) as: “saving lives and reducing suffering without risking damage to the environment or the livelihoods, assets, health and survival of affected people”.

The Earth is experiencing a Triple Planetary Crisis, consisting of the climate crisis, the biodiversity crisis, and the pollution crisis<sup>1</sup>. These crises have a profound impact on the natural world, causing increased human suffering that disproportionately impacts the most vulnerable communities. Recognizing the global collective need to act, humanitarian organisations have a responsibility to reduce their own environmental and climate footprint and strengthen the environmental sustainability of their work. Equally, the humanitarian community has a responsibility to scale up its support to communities to cope with and adapt to the existing consequences of the climate, biodiversity, and pollution crises – although this goes beyond what we mean by Green Response.

Addressing these challenges strongly contributes to the central purpose and mandate of the Red Cross and Red Crescent Movement. In addition, the integration of environmental considerations makes humanitarian response activities more effective by improving efficiency and protecting the natural resources which support lives and livelihoods.

Environmentally sustainable response operations contribute positively to sustainable recovery, conflict resolution and resilience building. As part of the global action on the climate and environmental crises, there are increasing calls from governments, donors, and partners to ensure that the environmental impact of our humanitarian action is reduced and that we abide by environmental regulations and legislation. The [Climate & Environment Charter for Humanitarian Organisations](#), which IFRC, the International Committee of the Red Cross (ICRC), and many National Societies have adopted, sets out key commitments in this area<sup>2</sup>.

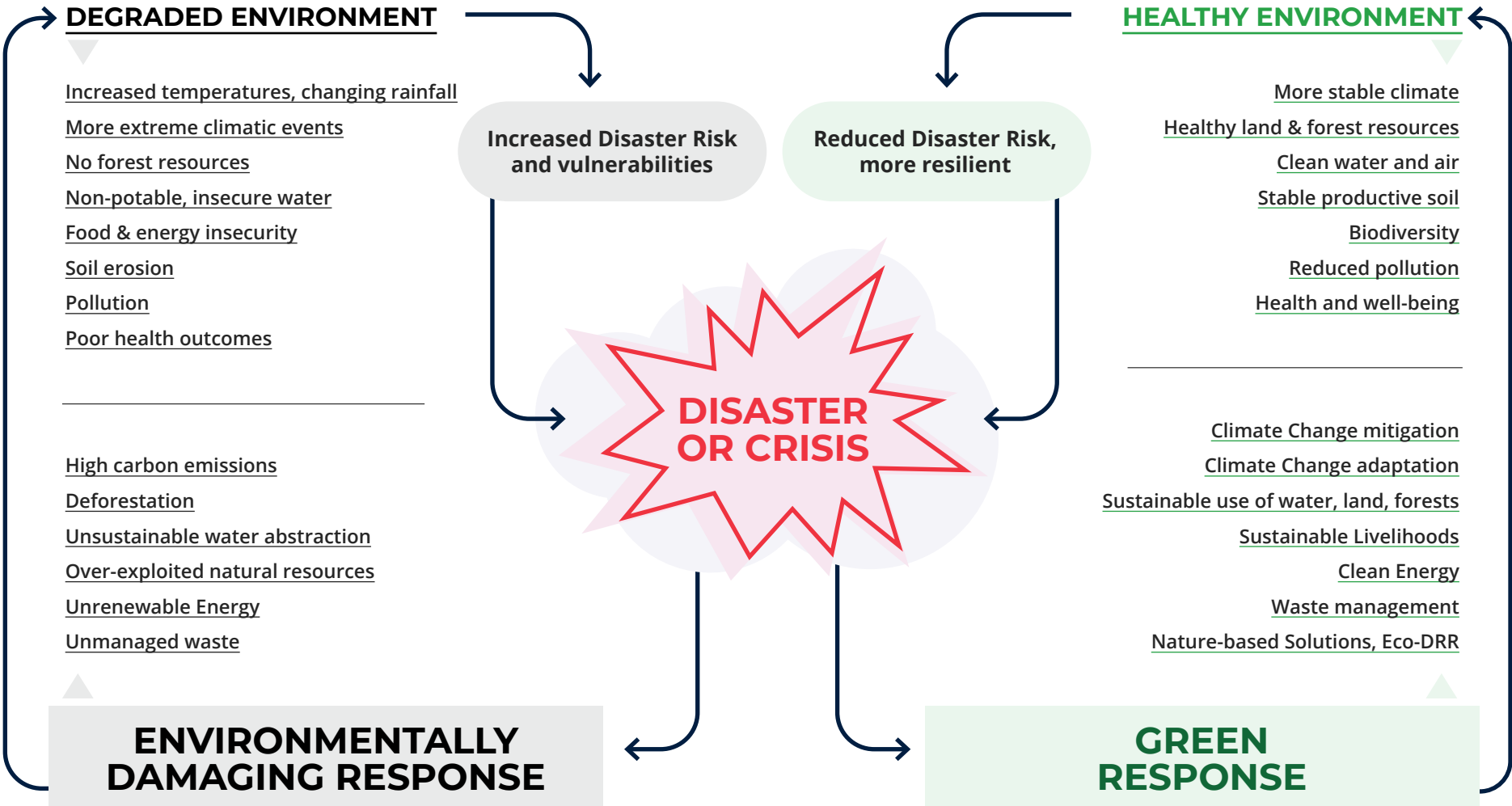
The focus of Green Response is for Red Cross and Red Crescent National Societies to deliver projects and activities that save lives and reduce suffering in a manner that does not degrade the environment and negatively impact the lives and livelihoods of current and future generations. To do this we must first identify how our projects and activities can negatively impact the environment and then seek alternatives or solutions that can achieve the same goals in a more sustainable way.

The figure below shows how environmental damage contributes to disaster risks and how that can be made worse when a humanitarian response further impacts the environment. On the other hand, the figure also shows how a greener humanitarian response can reduce disaster risks and helps break the cycle of disasters and strengthen resilience.

1 UNEP 2019 statement by the Executive Director

2 Commitment Two of the Climate & Environment Charter for Humanitarian Organizations states: we will maximize the environmental sustainability of our work, and rapidly reduce our greenhouse gas emissions. <https://www.climate-charter.org/>

The link between the environment, disasters, and humanitarian response

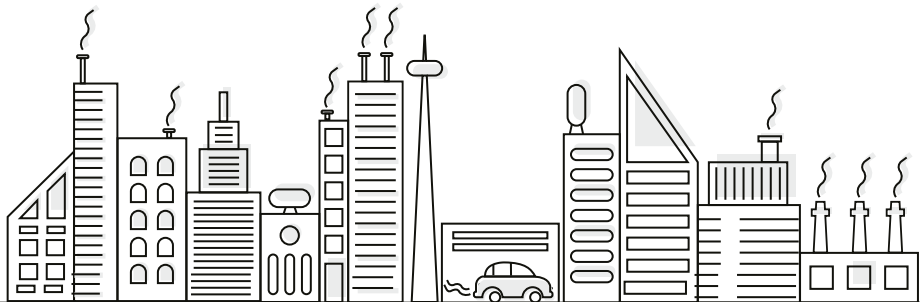
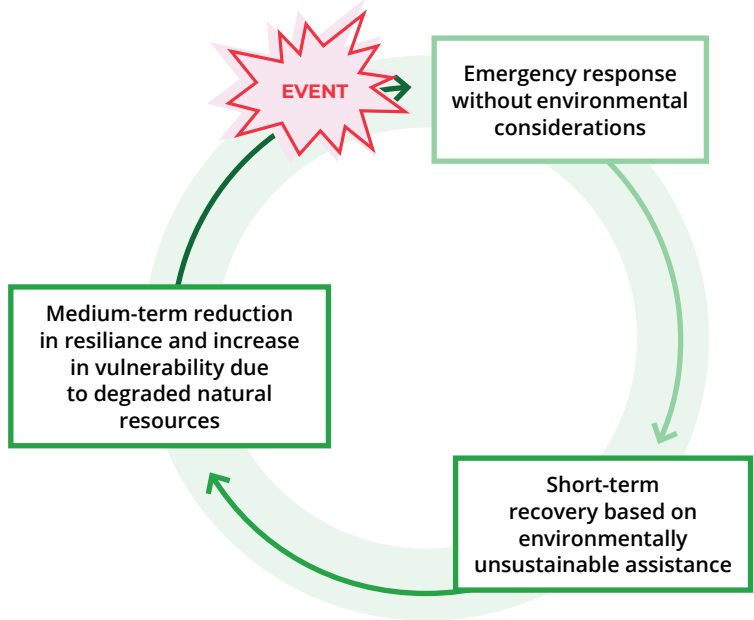




### When things go wrong

## The cycle of negative environmental impacts in humanitarian action

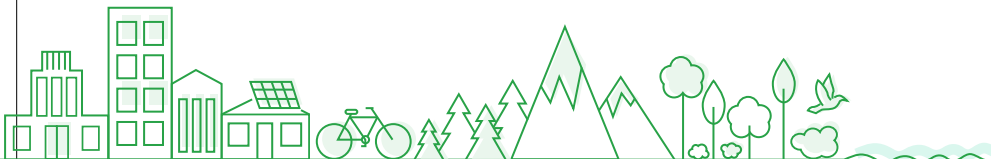
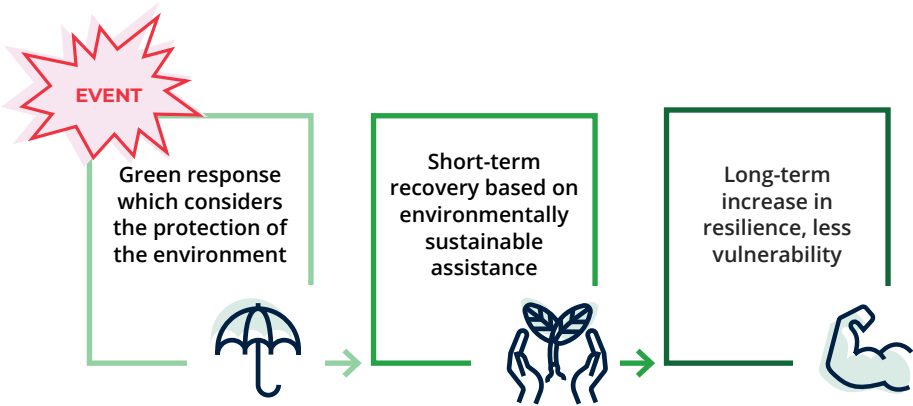
All humanitarian responses and projects have both negative and positive environmental impacts, but when the negative impacts are not identified and managed, they can undermine our goals and leave local communities facing increased risks and long-term losses. The image below shows the cycle of poor environmental management.



### When things go right

## Breaking the cycle with Green Response

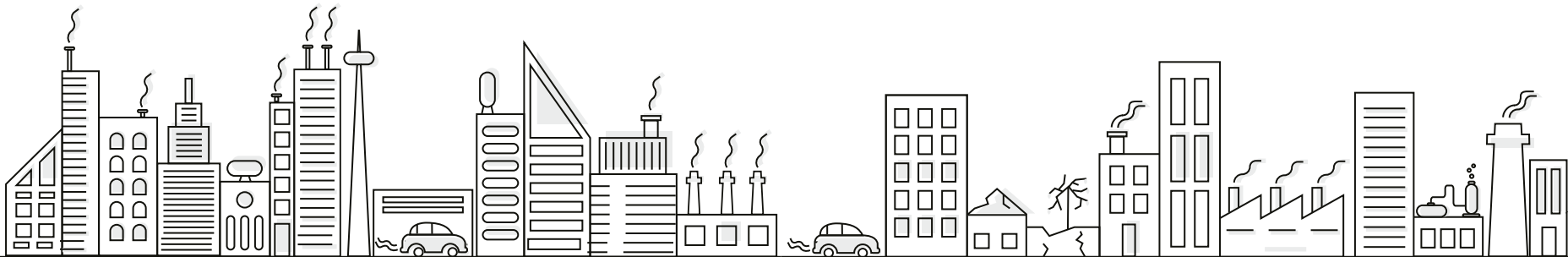
Humanitarian responses that include Green Response actions are more effective and can provide communities with lasting environmental benefits. In addition, Green Response promotes good resource management, this often saves money and time that can be used to provide more services for targeted communities. The image below shows the possible pathway of Green Response.



# When things go wrong

## Negative environmental impacts of humanitarian action

- **Polluted rivers from waste and run-off:** downstream villages don't have clean water, fish and other local aquatic resources die
- **Plastic and packaging waste piles up in ditches and rivers:** plastic is burnt causing toxic smoke that causes illness; drains and canals get blocked and flood when it rains
- **Relief supplies are stopped at the border** or at ports because they are wrapped in single use plastics which are illegal in that country.
- **Trees are cut down for household energy needs and (re) construction,** removing all the forest and leaving the soil exposed: gardens and crops fail because the soil is stripped of nutrients and moisture, there is not enough energy for people to cook their food, women and children walk long distances to get firewood
- **Ground is cleared for construction,** camps etc using bulldozers: all the vegetation is removed, and the ground becomes eroded and unproductive
- **Vehicles and diesel generators are over-used** and not well maintained: excess CO2 emissions contribute to climate change, fuels and oils spill into the soil and cause pollution
- **Over-reliance on international procurement,** and long-distance transportation, generates excessive CO2 emissions which contribute to climate change
- **Groundwater is over abstracted** for WASH projects: local wells run dry and not enough water is delivered to people that need it
- **Water supply systems are poorly maintained:** water is wasted through leaks and broken taps, people are left with not enough water and even more water is pumped from the limited ground water
- **Well intended projects to recover and strengthen livelihoods cause unexpected negative impact** on natural resources, like overfishing, or planting of harmful crops



# When things go right

## The benefits of Green Response

- **Good waste management:** clean river with thriving fish and downstream communities with clean water; clear drains that do not flood when it rains
- **Recycling provides income opportunities** for communities and prevents plastic waste from being burnt or becoming pollution
- **Relief supplies packed in biodegradable packaging** arrive on time and don't produce extra waste
- **Households have clean cooking energy:** they can cook their food faster, women stay safe and children can go to school, indoor air is cleaner, and local forests are protected
- **Construction is done with sustainable materials** and designed in a way to minimise energy and water needs, local forests, land, and water are protected, and the use of sustainable local construction materials provides economic benefits
- **Procurement of locally produced items, or Cash and Voucher Assistance** which considers the environment, helps to reduce the carbon footprint from our supply chain
- **Ground is cleared sensitively and by hand:** grass and other vegetation remains in place and protects the soils, there is no erosion and household gardens thrive, improving food security
- **Solar energy replaces diesel water pumps** and diesel generators in buildings: there are less CO2 emissions and other air pollution, no oils or fuels seep into the soil
- **Ground water is monitored and managed:** local wells stay full and water is available
- **Water supply systems are maintained:** water is conserved so everyone has enough and greywater is collected to provide water for gardens
- **Communities are more aware** of the importance of protecting the environment, and how to do so



# ENVIRONMENTAL SCREENING

Environmental screening is a simple, standardised approach to determining the potential environmental impacts of a project or activity so that these impacts can be avoided or mitigated. **Environmental screening is the first basic, but vital, step to improving the environmental sustainability of humanitarian projects.**

Environmental screening means simply identifying the physical inputs and outputs of a project or activity and comparing them to the sensitivities of the receiving environment to identify the key environmental impacts, both positive and negative. Once the environmental impacts are identified, then ways to avoid or mitigate the negative ones can be considered and these changes made to the project plan, with resources allocated if necessary. Appropriate indicators are then selected for monitoring and included in the project plan.

Environmental screening is a simplified form of environmental impact assessment and can be used for a single project or an entire humanitarian operation with the expectation that the effort put into the screening should be proportional to the likely environmental impact

of the project. For example, a community-based hygiene promotion project is unlikely to have significant environmental impact and the environmental screening may take less than an hour, whereas the building of a community health facility has more potential to significantly impact the environment and will require a more detailed screening, and potentially specialist advice.

Environmental Screening can normally be conducted by the programme manager and the project team with a good understanding of the planned project and a basic awareness of the environmental context of the project site. The quality of an environmental screening is greatly improved by an increased knowledge of the environmental context. Gathering environmental information as part of [Emergency Needs Assessments](#) or an [Enhanced Vulnerability Capacity Assessment \(EVCA\)](#) process can increase the speed and quality of environmental screening, and lead to more sustainable projects. For very large projects/operations, projects with multiple components that are likely to have a significant environmental impact, or projects in sensitive environmental contexts, specialist assistance will be needed.

## When to do Environmental Screening?

It is best to conduct an environmental screening as part of the project planning process. It is necessary to have a good understanding of what the activities and actions will be, but still be open to changes and improvements. If environmental screening is not done during planning it can also be done retrospectively to help identify key environmental

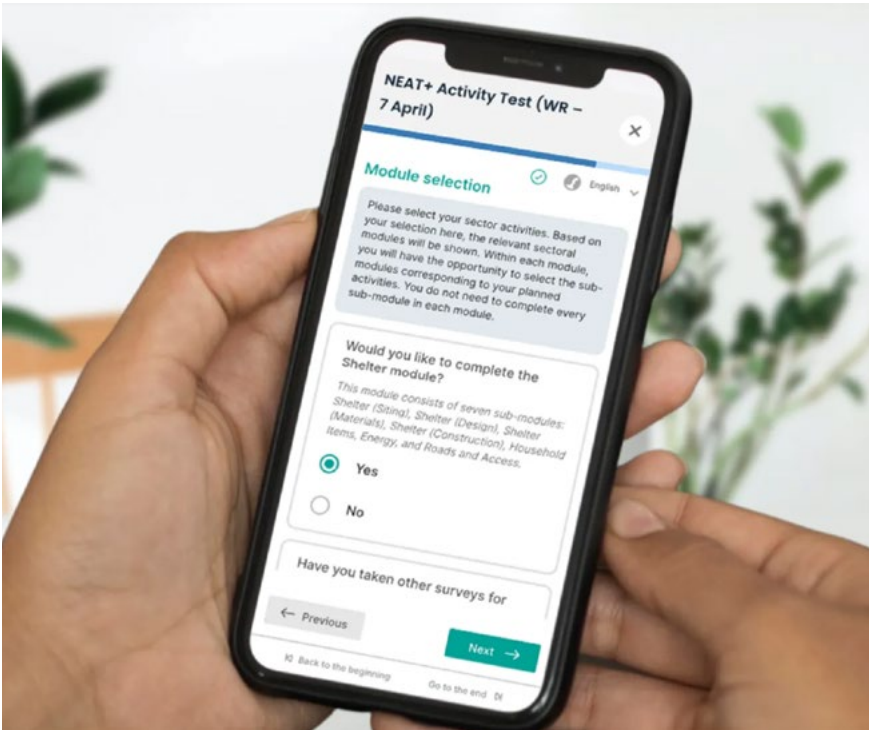
sensitivities or potential environmental outcomes that should be included in the monitoring of the projects, to improve programme quality. Environmental screening may also be required by local regulations or by donor requirements.

# Environmental Screening tools for the Humanitarian Sector

This guidance below gives the basic process of conducting an environmental screening which can be completed by any project manager or operations team. However, tools have been developed specifically for humanitarians to facilitate this process. These tools follow the same basic process and ask similar questions, including basic information about the environmental context, and on how planned interventions might affect the environment.

One such tool is the Nexus Environmental Assessment Tool, the NEAT+ ([neatplus.org](https://neatplus.org)) a project-level environmental screening tool for humanitarian contexts. NEAT+ includes different modules for different contexts and sectors and has the advantage of recording all information in one place, and identifies key environmental risks and suggested mitigation steps automatically. NEAT+, and other such tools, are especially helpful when doing detailed planning for longer-term humanitarian activities, such as in protracted crises, camp settings, or when supporting communities with recovery. You do not need environmental expertise to use it. Different members of the Red Cross Red Crescent Movement have started to use the NEAT+ tool, and it is recommended as the simplest of the available options.

Whilst these tools can potentially be used at any time or any context, they are less suited to the initial emergency response and the assessments done immediately after a new crisis, but more suitable once it is clear what the area of project implementation will be and what the overall response or operation will look like.



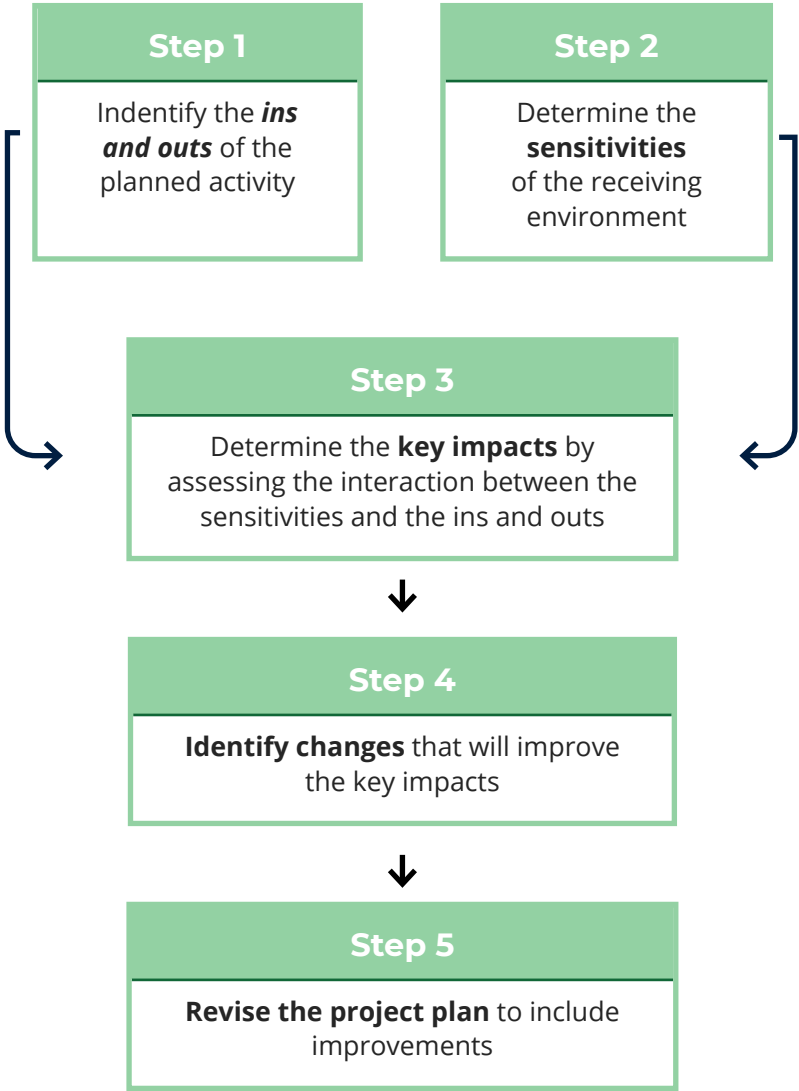
*The NEAT+ environmental screening tool is easy to use and allows humanitarians to understand the environmental context they are working in, and the potential environmental impacts that their planned activities may cause. The tool provides a summary report and also suggests mitigating actions which can be integrated into projects to improve the overall environmental outcome.*



# How to Conduct an Environmental Screening

Although many tools like the NEAT+ exist to simplify environmental screening, it is good to understand the process so that you can do it yourself. The likely environmental impacts of a project are identified by predicting the interaction between the known sensitivities of the environment and the physical changes that will be caused by the activities. To conduct an environmental screening, you need a good understanding of the planned activity, with a focus on the physical actions that will take place (the ins and outs), and an awareness of the environmental context of the site for the planned activity.

Generally, a basic knowledge of the environmental context is sufficient, however, the deeper the understanding of the environmental context the more effective the screening will be. Following the recommendations in the guidance on Environmental Sustainability in the Emergency Needs Assessment Process (link to be added), including collection of secondary environmental information from online and published resources and community consultation, can increase the understanding of the environmental context. Where possible discussions with the National Society environment focal point (if one exists), and/or local environmental experts, could further clarify the environmental context for screening purposes.



### Step 1. Identify the environmental *inputs and outputs* of the activity

Review the project plan and identify all the physical actions that will need to occur and what they bring into, take out of, or change in the environment.

### Step 2. Determine the sensitivities of the environment

Consider the local environment in which the activities will take place. Think about things such as:

- Climate
- Topography
- Natural resources
- Water sources
- Local population
- Land use, livelihoods
- Local industry
- Services such as electricity or sanitation
- Access
- Protected areas and cultural sites

It is also important to consider the global environmental impact of projects including greenhouse gas emissions, plastic waste and pollution – from transportation, procurement and supply chain etc.

### Step 3. Determine the key impacts

Compare the list of *inputs and outputs* with the identified environmental sensitivities to determine the key impacts. It is the interaction between the project *ins and outs* and the environment that is important e.g. a water extraction project in an arid climate that is water stressed, or a project increasing plastic waste (bringing plastic *in*) in remote rural communities with no waste management system, are likely to have larger impacts.

### Step 4. Identify improvements

Investigate options to reduce or improve the key impacts e.g. using biodegradable cardboard packaging instead of plastic; or preserving ground cover to avoid soil erosion. To find ideas, discuss the options with colleagues, review the ideas in the Green Response Environmental Quick Guide or ask for assistance from subject specialists.

### Step 5. Revise the project plan

Update the project plan to include the improvements that have been identified to reduce the environmental impact. Have budget allocated if necessary. Include appropriate indicators in the monitoring plan.

For an example of a basic environmental screening for a water project, see the Annex.

## FURTHER INFORMATION

### TOOLS

Nexus Environmental Assessment Tool (NEAT+): [www.neatplus.org](http://www.neatplus.org)

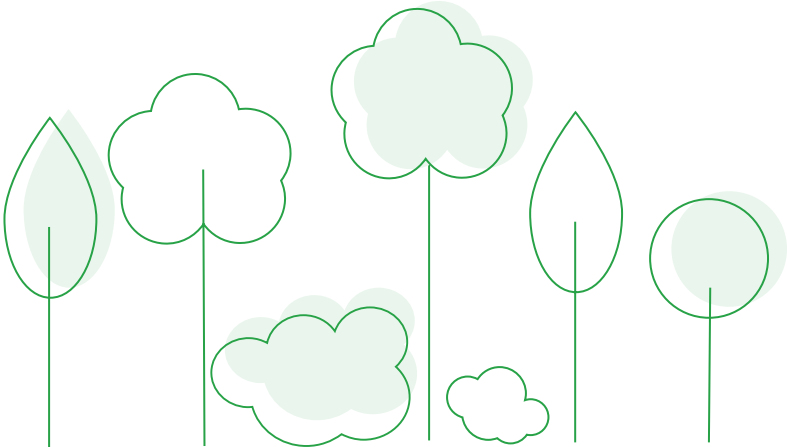
Rapid Environmental Assessment Tool (REA) <https://eecentre.org/resources/rapid-environmental-assessment-in-disasters-rea-guidelines/>

### GUIDANCE

Thematic sheet: reducing environmental impact in humanitarian response, SPHERE and Swedish Red Cross (2019).  
<https://spherestandards.org/wp-content/uploads/Sphere-thematic-sheet-environment-EN.pdf>

Minimum Environmental Requirements And Recommendations, DG ECHO 2022  
[https://ec.europa.eu/echo/what/humanitarian-aid/climate-change-and-environment\\_en](https://ec.europa.eu/echo/what/humanitarian-aid/climate-change-and-environment_en)

Greening Humanitarian Aid, eLEarning , DG ECHO  
<https://www.dgecho-partners-helpdesk.eu/elearning-greening-humanitarian-aid#/>



# ORGANISATIONAL LEVEL

*In 2021 the IFRC and ICRC developed the Climate & Environment Charter for Humanitarian Organisations, committing to “maximise the environmental sustainability of our work and rapidly reduce our greenhouse gas emissions”*

## Issues

- Going green requires a new way of thinking for the organization, and the required support from leadership and dedicated resources are often not prioritised.
- Being environmentally sustainable is often no-one’s specific responsibility in the organisation, and there is a lack of awareness across our organizations on how our work can impact the environment and what can be done about it.
- The increased pressure from governments and donors to improve environmental outcomes and abide by environmental regulations is not being matched with an increase in environmental expertise and funds.
- A lack of dedicated resources and long-term funding to support an internal change process makes progress challenging.
- Insufficient coordination between short-term humanitarian interventions and long-term development goals undermines environmental sustainability and efficiency.

## Solutions

National Society staff and volunteers are already motivated to provide quality services to communities in need; this provides a powerful foundation for a transition to being more environmentally sustainable. Long-term commitment by your organisation to be environmentally sustainable, supported by leadership and staff on all levels and across all departments and teams, can lead to real change. A basic review of the organisation’s standard practices for water and energy use, waste disposal, and greenhouse gas emissions can often identify quick, cheap changes that can be made to immediately reduce our environmental impact. Environmental initiatives are often an excellent starting point for cross-sector collaboration and can strengthen the sense of joint purpose and teamwork needed to drive on-going, incremental improvements.

## GREEN RECOMMENDATIONS

- **Strengthen and show** commitment to environmental sustainability at the managerial and board level by developing an Environmental Policy, and including the environment in the long-term strategy of your organization.
- **Ensure** that senior leadership owns and champions environmental sustainability.
- **Appoint and support** a lead or focal point for environmental sustainability, to convene stakeholders from across the organisation, and to monitor progress.
- **Develop a strategy** to build environmental sustainability, including clear guidelines for staff actions and incentives for meeting environmental goals. Communicate it well to staff and stakeholders.
- **Make it a requirement** that all project planning includes environmental screening.
- **Conduct** an environmental assessment for your organisation to identify the key environmental impacts and areas for improvement, including measuring greenhouse gas emissions.
- **Establish** an environmental baseline and monitor and evaluate the greening process with a key focus on greenhouse gas emissions, energy, water and waste.
- **Take quick**, practical steps that create enthusiasm and momentum for sustainability, for example implementing a sustainable travel policy, using recycled paper in offices, serving plant-based food in cafeterias and switching to a green energy provider.
- **Acknowledge** staff opinions and feedback to ensure feasibility and improve implementation.
- **If offsets are used** to balance for unavoidable environmental damage, such as greenhouse gas emissions, then ensure the offsets are certified, high-quality credits.
- **Identify** your needs in terms of training, practical guidance, systems and tools.
- **Secure and allocate** funding to support a continuous change process, and for dedicated human resources.
- **Seek external support** and advice from governmental and non-governmental environmental organisations, local experts, and contact the Green Response Working Group for support.



## FURTHER INFORMATION

### GUIDANCE

IFRC Environmental Policy toolkit: guidance for National Societies to develop their own Environmental Policy (link coming soon)

Red Goes Green Checklist, Swedish Red Cross (2020)

[https://www.rodakorset.se/globalassets/rodakorset.se/dokument/om-oss/fakta-och-standpunkter/rapporter/red-goes-green\\_checklist.pdf](https://www.rodakorset.se/globalassets/rodakorset.se/dokument/om-oss/fakta-och-standpunkter/rapporter/red-goes-green_checklist.pdf)

Massive Open Online Course (MOOC) on Sustainable Development in Humanitarian Action. ICRC and IFRC.

<https://www.futurelearn.com/courses/sustainable-development-humanitarian-action>

[Carbon Accounting Tool for Humanitarian Organisations: Specifications](#). From the Movement Sustainable Supply Chain Alliance

### REPORTS

Report to better understand obstacles to greening an organization:

Red Goes Green, Barriers and enablers for effectively greening practices and strengthening environmental sustainability across the International Red Cross Red Crescent Movement, Swedish Red Cross, Green Response Working Group (2020)

[https://www.rodakorset.se/globalassets/rodakorset.se/dokument/om-oss/fakta-och-standpunkter/rapporter/red-goes-green\\_report\\_2020.pdf](https://www.rodakorset.se/globalassets/rodakorset.se/dokument/om-oss/fakta-och-standpunkter/rapporter/red-goes-green_report_2020.pdf)

Study on the challenges for large-scale effective implementation of environmental mainstreaming:

Brügge, Environmental Mainstreaming in Humanitarian Interventions Pinochet, Hansen and Vichitlekarn (2020)

[https://www.eecentre.org/wp-content/uploads/2020/04/EMHIT\\_FINAL-REPORT-with-WWF-good-practice-2.pdf](https://www.eecentre.org/wp-content/uploads/2020/04/EMHIT_FINAL-REPORT-with-WWF-good-practice-2.pdf)

Assessing the environmental impact of humanitarian activities:

Environmental Footprint of Humanitarian Assistance, Funded by DG ECHO, Scoping Review. Crowley (2020).

<https://reliefweb.int/sites/reliefweb.int/files/resources/Groupe-URD-Inspire-studypublic.pdf>

# Example Green Policies in Costa Rica

The Costa Rican Red Cross considers Green Response as essential to fulfill their mandate. Green Response is mainstreamed into their Disaster Risk Management Policy, and, with strong support from the management of the Costa Rican RC, a dedicated Environmental Management Policy has been introduced to guide their operations. The importance of environmental protection and minimising negative environmental impacts while providing high-quality services is also highlighted within the Costa Rican Red Cross Strategic Development Plan 2021–2030. This sends a strong, consistent message to staff, partners and beneficiaries that senior leaders in the National Society own and champion environmental sustainability. The Costa Rican Red Cross is also part of the national Blue Flag program. This program helps organisations measure five environmental performance areas (waste management, water, electricity, fossil fuels, and responsible consumption), and recognises their efforts to protect natural resources. In 2021, 81 branches across the country were part of the program. This prioritization of green and sustainable solutions has occurred within the Costa Rican Red Cross because their leadership has made their support for these policies clear, and allocated resources to ensure sustainability policies can be implemented. Individual offices and branches have also taken responsibility for developing their own environmental management plans which are supported through the Blue Flag program.



Example

Measuring and Reducing Greenhouse Gas Emissions

As part of the environmental responsibilities of humanitarian agencies, National Societies need to reduce their carbon footprint, or greenhouse gas (GHG) emissions. A first step in this process is calculating the GHG emissions that are produced by the whole organisation. GHG emissions are categorized into three scopes: scope 1 (direct), scope 2 (indirect, resulting from energy sources the organisation uses), and scope 3 (all other indirect emissions). Scope 1 emissions are more easily addressed, but because of the nature of National Societies’ work, emissions are usually scope 2 or 3, which are more difficult to measure and reduce. Scope 3 emissions cover, for example, those carbon emissions which take place during the production of the goods and services that are purchased to support crisis-affected communities.

Starting to measure our carbon footprint is a significant first step which has already been taken by some Movement partners. In 2018, the Spanish Red Cross contracted a consulting firm to calculate their GHG emission for the previous 3 years, focusing on their domestic operations. They found that 62.5% of their emissions were scope 1, 30% were scope 2, and 6.3% were scope 3. Using these measurements, the Spanish RC designed projects aimed to reduce their emissions by incorporating renewable energy and vehicle efficiency into their plans. Each branch created a carbon footprint task force that designed a compensation management plan and identified a strategy for implementation and reduction of emissions. Overall, the Spanish RC aims to decrease their emissions by 1.5% yearly (7.742 tons of CO2-eq), reforest 496.62 hectares of land annually, and plant 900 trees per hectare (around 446,400 trees yearly). Between 2018 and 2020, Spanish RC was able to reduce their total emissions from 19,611 tons of CO2-eq to 11,920 tons of CO2-eq.

In 2019, the ICRC began a project with a specialized consultancy to develop a greenhouse gas accounting tool to monitor annual greenhouse gas emissions, including scope 3 emissions. In 2018 and 2019, the ICRC’s greenhouse gas emissions totalled 1,239,977 and 1,149,487 t CO2-eq. respectively. To calculate these emissions, the ICRC used data from its financial accounts, as well as statistical data from databases maintained by teams across the organization such as procurement, fleet, transport, assistance, etc. ICRC found that, of 2018 and 2019 emissions, 93% were scope 3, which the ICRC has a lower degree of control over. At the moment, the ICRC has decided to focus on reducing its scope 1 emissions, and is launching a project to install solar panels in premises that have so far been reliant on diesel generators for their electricity production. ICRC is also investigating the large-scale initiatives it will need to put in place to reduce its scope 3 emissions.

# SUPPORTING COMMUNITY ENVIRONMENTAL AWARENESS

*A study in Kenya showed that among youth with a high level of awareness about the dangers of single use plastics, 94.8% wanted to personally switch to using renewable alternatives, and many had already made the switch<sup>3</sup>.*

## Issues

- Environmental sustainability is often seen as an unnecessary luxury, particularly during periods of crisis.
- Often people express environmental concerns indirectly, linked to insecure livelihoods, loss of cultural practices or concern over the speed of modernisation.
- There is a lack of awareness of the fragility of ecosystems, climate change and how a degraded environment and environmental pollution negatively impact human health and well-being.
- Small environmentally sustainable acts are seen as inconsequential and larger efforts are seen as too difficult or inconvenient.
- Protecting the environment is seen as ‘someone else’s problem’.
- National Society staff and volunteers have huge untapped potential and can do much more to help support communities to protect the environment.

## Solution

Undertaking environmental awareness campaigns and sharing knowledge and information about the environment and climate change with communities can help people feel motivated and empowered to take environmental action, which also improves community resilience. These can be easily integrated into operations and project activities, and volunteers can be mobilised in support of this. Consulting communities on environmental issues can raise insightful and useful ideas, and aligns with our approach to Community Engagement and Accountability (CEA). Environmental awareness-raising activities that highlight how environmental considerations are linked to health, water and food security, livelihoods and the protection of natural and cultural heritage helps people identify with the need to sustainably manage and protect ecosystems. It also ensures that they can reap the benefits of environmental actions and feel empowered to advocate for their own environmental rights.

<sup>3</sup> Oguge, Nicholas, Francis Oremo, and Salome Adhiambo. 2021. Investigating the Knowledge and Attitudes towards Plastic Pollution among the Youth in Nairobi, Kenya. Social Sciences 10: 408. <https://doi.org/10.3390/socsci10110408>

## GREEN RECOMMENDATIONS

- **Integrate** environmental awareness activities into your projects and operations wherever possible. Almost all activities, no matter what sector, can include an environmental component or consideration.
- **Mainstreaming** environmental and climate change awareness across a range of education and communications activities can be more effective than one-off specific environmental trainings in communities. Volunteers can be trained and provided with appropriate communications materials.
- **Always talk about issues** that are relevant to those listening, this helps to communicate effectively about environmental sustainability.
- **When discussing environmental issues** with communities be aware that ‘the environment’ is an abstract concept and discussions are likely to be more fruitful when centred on tangible issues that communities relate to, like food and water security.
- **Take a rights-based approach** to environmental education, everyone must have the opportunity to benefit from a clean healthy environment.
- **Support communities** to communicate their own environmental needs and to advocate for their own environmental rights.

## FURTHER INFORMATION

### GUIDANCE

Road Map to Community Resilience, IFRC (2018) [1310403-Road-Map-to-Community-Resilience-Final-Version\\_EN-08.pdf](#) (ifrc.org)

Specific Public Awareness and Public Education resources for National Societies on environment and climate change are currently under development.

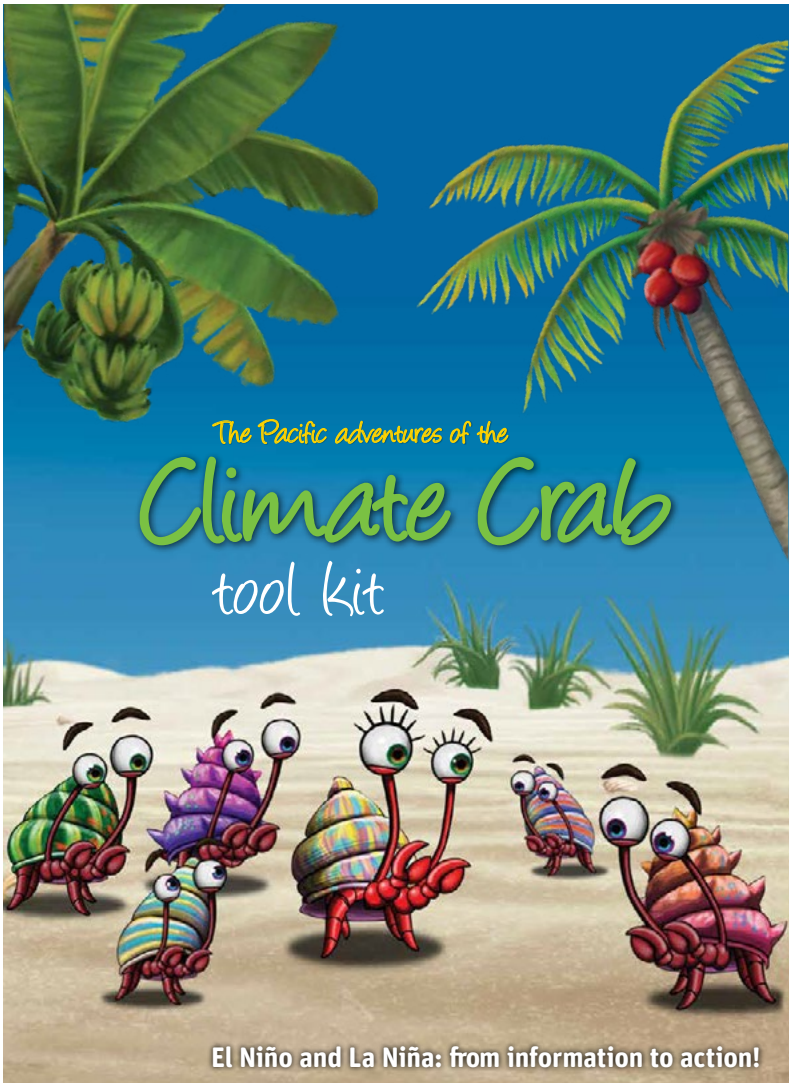


Example

Communicating climate risks in Pacific communities

The Australian Red Cross, Vanuatu Red Cross, Red Cross Red Crescent Climate Centre and IFRC collaborated with the Australian Government’s Pacific-Australia Climate Change Science and Adaptation Planning Program, to help Pacific communities better prepare for climate change and disasters. The group created an animated video called “The Pacific Adventures of the Climate Crab”, which stars a cartoon crab who is faced with climate related disasters. The video was produced to make the concepts of climate and climate change more accessible to communities. It focuses on the specific effects of climate change in the Pacific region, and shows how preparing well for disasters can save lives, property and protect clean water, food crops and infrastructure. The animation and accompanying education tool kit is used by Red Cross branches across the Pacific in their work with communities.

[Adventures of the Climate Crab](#) | [Pacific Climate Change Science](#) | [Pacific Climate Change Science](#)



# PROCUREMENT

*ICRC and IFRC have stopped waste from over 14 million plastic bags annually by changing their procurement processes to ensure standard relief items do not include plastic packaging.*

## Issues

- Purchasing and delivering relief materials represents one of the biggest sources of greenhouse gas emissions from Movement activities<sup>4</sup>.
- A lack of environmental standards for procurement of products and services misses an opportunity to improve environmental sustainability from the beginning of our work.
- Poor quality items that break cannot be well managed by weak or non-existent local waste management systems, and need to be replaced.
- Packaging on relief items and other materials can generate excessive waste which can be difficult to manage in many operational contexts.

## Solutions

Including environmental considerations in the procurement process can improve environmental outcomes before a humanitarian response even starts. The assessment of environmental impact across the wide range of materials and services required for Movement activities is complicated. It will take time, but with ongoing screening we can achieve continuous, incremental improvement to the supply chain. Greener and less greenhouse gas intensive technologies, materials, and packaging are regularly becoming cheaper and more available. Working with suppliers and other partners can help us to benefit from advances and innovations which will reduce our environmental footprint.

<sup>4</sup> ICRC found that 60–80% of its greenhouse gas emissions are a result of their supply chain

## GREEN RECOMMENDATIONS

- **Develop, include and follow** robust environmental standards in the global specifications of standard relief items.
- **Consult** the IFRC/ICRC sustainable items information sheets when planning to purchase common relief items, the link is provided below.
- **Incentivize** suppliers to improve their environmental practices and fulfil environmental standards by including these in tender and contract documentation.
- **Consider how packaging can be reduced** or transformed so it is more sustainable, e.g. biodegradable, or packaging with an alternative use.
- **Encourage local procurement** of locally produced materials, where acceptable quality and environmental standards can be verified in market assessments, to support the local economy and reduce transportation and greenhouse gas emissions..
- **Seek external environmental expertise** when considering large purchases or tenders or when establishing environmentally sustainable purchasing guidelines.
- **Promote** cash and voucher assistance if market assessments show that local markets can provide sustainable, good quality products.
- **Consider** the end-to-end greenhouse gas footprint of products when evaluating different options. A high-quality, long-lasting item, with a lower production footprint might be preferable, even if the initial investment is more expensive than a cheap product that needs to be replaced frequently, generating more waste.

FURTHER INFORMATION

IFRC/ICRC sustainable procurement info sheet:  
<https://itemscatalogue.redcross.int/green--2/sustainable-procurement--25/sustainable-criteria--112/information-sheet-sustainable-procurement--SUSTAINABLE.aspx>

Green: Standard Products Catalogue for IFRC and ICRC (on redcross.int). Shows sustainable criteria for 12 important standard relief items.  
<https://itemscatalogue.redcross.int/green--2.aspx>

Info sheet on the ICRCs procurement policy: Guidelines and information on how to do business with ICRC  
<https://www.icrc.org/en/document/guidelines-and-information-how-do-business-icrc>

ICRC Sustainable Procurement Guidelines (link is coming soon)



## Example

## Sustainable Supply Chain Alliance (SSCA)

The SSCA is a multi-project initiative with the goal of improving the environmental, social, and economic sustainability of supply chains and related logistics functions in the Red Cross Red Crescent Movement. It began in September 2020 and will run for three years, with the support of the Norwegian Government. It is hosted by ICRC and includes IFRC, with a vision to share best practices among all National Societies. The main objectives include quantifying and monitoring the sustainability of the supply chain in the Movement, sharing information, and creating synergies for sustainability inside and outside the Movement.

To complete these objectives, the SSCA has 8 key projects:

1. The development of a common carbon accounting tool for the humanitarian sector, to ensure consistency in measurement of carbon emissions.
2. The strengthening of Quality, Social and Environmental (QSE) assessment practices in the ICRC supplier selection process.
3. The revision of the specifications of the ten most purchased relief items, essential household items and food parcels, to include sustainability guidelines.
4. A research and development project by ICRC, UNHCR, and IFRC, for a more sustainable tarpaulin design that can reduce the polypropylene and polyethylene used.
5. A research and development project by UNHCR, WFP, and ICRC, that looks at possible alternatives to the polypropylene bag which is used for food aid and relief item packaging.

6. Developing a tool to calculate the sustainability (environmental, social and economic) of different vehicle options. ICRC and IFRC have created infographics to help decision-makers to choose 'the right car for the right job', for fleet optimization and to reduce carbon emissions.
7. The development of clear Standard Operating Procedures and a monitoring system to reduce vehicle workshop waste, as well as making sure the workshop waste is properly managed.
8. The design of new projects for 2022–2023 in transport, warehousing, air operations, and procurement.

The SSCA is the result of several years of discussions on how to improve the sustainability of the humanitarian supply chain. The open and collaborative approach being taken, both across the Movement and beyond, is an example of how practices can be influenced beyond the perimeter of a single organization. Lessons and best practices from the project are shared with all National Societies, so that they can integrate them into their own logistics and procurement processes, to improve the environmental, social and economic sustainability of humanitarian supply chains and logistics.

### CONTACT

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# Example Packaging reduction, Global

The Movement is making changes to packaging and adopting improved procurement to make goods and services more environmentally sustainable and less carbon intensive.

ICRC and IFRC have taken steps to replace the plastic packaging from Essential Household Items with biodegradable cardboard packaging. Previously, 8 to 10 pieces of plastic packaging would have been used to protect the items in just one kitchen set. These have now been almost completely replaced with cardboard, with only one plastic cover used to protect the knife that is included in the sets. As a result, 53 tonnes of plastic is now being saved each year, from improved packaging on kitchen sets, tarpaulins and jerry cans. For ICRC and IFRC this totals around 14 million plastic bags saved annually.



Plastic bags from a kitchen set before changing packaging (above); and what the kitchen set looks like after removing plastic packaging (below). Stephane Hout-Marchand, 2021

# Example Luminescent tarps help meet multiple needs, Madagascar

In 2020 the Madagascar Red Cross and the French Red Cross, with support from the Luxembourg Red Cross, worked with the French Indian Ocean Regional Intervention Platform (PIROI) to test the SOLLUNE tarpaulin. The SOLLUNE tarp collects sunlight (solar energy) during the daytime and then provides a soft, phosphorescent light throughout the night. This makes it a shelter product that also provides emergency solar household lighting, and improves on traditional emergency lighting options as it does not produce any waste from batteries, solar panels, wires or bulbs. It is installed in the same way as a traditional tarpaulin and does not require any additional accessories, maintenance or handling.

During testing in in Antalaha, Madagascar 97% of the recipients found the tarpaulin's light to be useful for household lighting, and reported that it reduced the risk of accidents and improved their sense of safety.

<https://red-social-innovation.com/en/solution/sollune-lighting-up-darkness-thanks-to-phosphorescent-shelters/>



Piroi

# TRANSPORT AND LOGISTICS

*Sea freight is a hundred times less greenhouse gas intensive than air freight. It makes sense to preposition relief items as part of preparedness work, to avoid the need to fly in materials<sup>5</sup>.*

## Issues

- Red Cross Red Crescent Movement operations need to transport people and materials, this creates significant amounts of greenhouse gas emissions, and potential for hazardous waste and pollution.

## Solutions

Doing procurement and transportation of materials outside of emergency contexts, as part of preparedness work, allows for slower but more strategic and sustainable shipping and warehousing options. These can greatly reduce the environmental impact of our humanitarian action.

In day-to-day operations, even small changes like more efficient vehicle management can easily reduce greenhouse gas emissions from local transport and fleet. In addition, a well-managed vehicle fleet will run better and last longer since the right vehicles will be used for the right purpose. This means vehicles will need to be replaced less often, further reducing costs and the environmental impact of vehicle production.

<sup>5</sup> IFRC (2013) Green Response, Practice note report, Geneva <https://www.alnap.org/help-library/green-response-practice-note-report>

## GREEN RECOMMENDATIONS

- **Anticipate future needs** to enable better pre-stocking and avoid emergency airfreight by allowing for slower more sustainable shipping, and warehousing as localised as possible. This is another reason why further investment into preparedness programming is essential, as it can greatly reduce the greenhouse gas emissions associated with emergency response.
- **Monitor** stocks to ensure they rotate frequently enough to avoid wasting items that are not dispatched within the product “shelf life”.
- **Optimize** space usage in warehouses and shipment loads to minimize construction and greenhouse gas emissions. For example, use space efficiently by reducing packaging.
- **Explore** opportunities for shipping relief items with non-humanitarian goods (cargo consolidation).
- **Implement** monitoring tools to collect data on vehicle usage and identify opportunities for improvement: for example, reducing fuel waste from speeding and idle time.

- **Use vehicles that are appropriate** to the context to avoid excess greenhouse gas emissions and unnecessary wear and tear on vehicles. For example, heavy and more powerful four-wheel drive vehicles are not needed in most areas, like in urban settings or on good road infrastructure. For short distances, especially in cities, the use of electric vehicles might be possible.
- **Conduct trainings** and introduce incentives for drivers to encourage fuel efficient driving.
- **Consider** the location of offices, branches and warehouses to reduce transportation costs and emissions as much as possible.
- **Consider** the transportation impacts when setting security and movement restrictions.
- **Identify** local and/or regional expertise during preparedness activities, this will reduce the need for international experts to travel on long-haul international flights.

## FURTHER INFORMATION

### CASE STUDIES

Greening IFRC supply chains; mapping our GHG emissions  
[https://ctk.climatecentre.org/downloads/modules/training\\_downloads/1b%20CaseStudy\\_Greening-IFRC-Supply-chains.pdf](https://ctk.climatecentre.org/downloads/modules/training_downloads/1b%20CaseStudy_Greening-IFRC-Supply-chains.pdf)

IFRC Green Response, Practice note report, Geneva  
<https://www.alnap.org/help-library/green-response-practice-note-report>

### TOOLKITS

Tool to develop a strategy to manage fleet environmental impacts:  
  
UNEP, TNT (2006) Clean Fleet Toolkit  
<https://knowledge.fleetforum.org/knowledge-base/article/managing-environmental-impact-of-your-fleet>

### GUIDANCE

Detailed overview of what it entails to make logistics greener:  
  
Logistics cluster (2021) Technical support guide - Green Logistics  
<https://dlca.logcluster.org/display/LOG/Green+Logistics/>  
  
[Fleet Optimisation infographic](#), ICRC  
  
[Fleet Optimisation infographic](#), IFRC  
  
[ICRC SOPs for fleet and workshop waste management](#)

# Example Sustainable fleet management in Costa Rica

A National Society's fleet can make a large contribution to their greenhouse gas emissions, especially for societies that have large, specialist fleets such as ambulances.

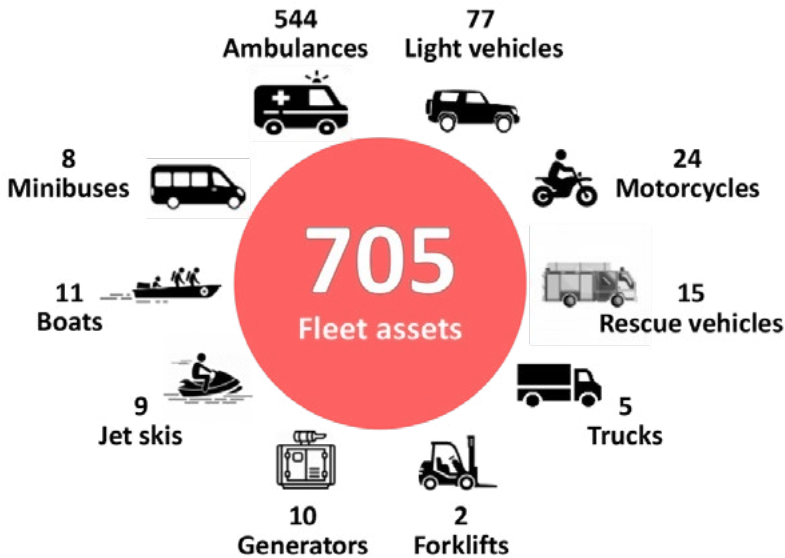
In 2017, the Costa Rican RC decided to address this problem by implementing a fleet development project. The project aimed to optimise all fleet assets. To do so, all fleet assets were tracked and controlled throughout their life cycles, and the data was analysed to find ways to reduce fuel waste. The Costa Rican RC also found that the implementation of a Vehicle Tracking Systems and integration with pre-existing software enabled better fleet control, provided real time data, and led to improved efficiency. Over the past four years, these actions led to a 19% decrease in fuel consumption and greenhouse gas

emissions, a 50% decrease in accidents, and around \$113,000 savings per year. The fleet project was a great success for the entire Costa Rican RC and as a result, other departments are now trying to optimise and improve efficiency, showing that one department can inspire the whole institution to make improvements that not only cut costs, but also improve environmental sustainability.

A short video is available [here](#)

### CONTACT

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# Example Electric vehicles in health care in Japan

In 2021, the Japanese Red Cross Society (JRCS) signed an agreement with Toyota Motor Corporation for the demonstration testing of the world’s first fuel cell electric vehicle (FCEV) mobile clinic that uses hydrogen to generate electricity. The partnership aims to demonstrate the effectiveness of commercial FCEV in areas of medicine and disaster response. By building an operational model of an FCEV mobile clinic for use during normal times and times of disaster, this initiative will also contribute to the reduction of greenhouse gas emissions. In consultation

with the International Medical Relief Department of Japanese Red Cross Kumamoto Hospital, Toyota has developed the mobile clinic based on its Coaster minibus, with the power source using the fuel cell system that uses hydrogen, employed by the “Mirai” Fuel Cell Vehicle. On the road, it exhibits superior environmental performance with no CO2 emissions or substances of concern, while offering a low-noise, low-vibration driving experience.



Courtesy of Toyota Motor Corporation

# Example Managing vehicle workshop waste in South Sudan

In South Sudan, proper waste management has been a challenge for decades. Maintaining a fleet and vehicle workshop creates waste which in some cases is hazardous and cannot be safely managed in the country, having a negative impact on the environment. ICRCs South Sudan delegation alone produces annual vehicle workshop waste of over 400 tyres, 12,000 liters of used engine oil and 250 vehicle batteries. A joint project starting in 2021 between ICRC, Médecins Sans Frontières and World Food Programme resulted in analysis of the different waste management options, and a comprehensive mapping of potential vehicle waste management companies in neighbouring Uganda who have the required capacity to safely manage the waste. Potential suppliers underwent a Quality Social and Environmental (QSE) assessment. Starting in 2022, a pilot will send used engine oil and oil filters to Uganda for safe disposal or recycling (where the used oil will be used as an input for cement production). Solutions for tyres and car batteries will follow soon.



Juozas Cernius

# CONSTRUCTION

*Insulating a building with locally available and sustainable materials can significantly reduce energy use and emissions, for example straw bale buildings are 68% more energy efficient than conventional structures<sup>6</sup>.*

## Issues

- Many different activities require construction, from building a tank stand for a WASH project, the construction of a health facility, or shelter projects. The extraction, manufacture, and transportation of construction materials, particularly steel and concrete, can have significant environmental impacts, and are a major source of greenhouse gas emissions.
- A focus on standard humanitarian construction approaches and materials can lead to missed opportunities to reuse or recycle locally available materials like disaster rubble.
- Buildings or structures that are poorly designed for the local climate and environmental conditions can have an ongoing impact on energy consumption for heating and cooling.
- Construction activities can cause harm to the environment through overuse of local resources, insensitive site clearance and preparation, and waste generation.
- Building in hazard prone areas leads to repeated energy and resource intensive reconstruction, which may be made worse by climate change.

## Solutions

Utilizing locally available, sustainably sourced materials to design and construct culturally and environmentally appropriate structures can have long-term positive impacts for communities. Integrating sustainable water and energy systems into new and existing structures can improve their efficiency and effectiveness, while improving environmental outcomes. Sensitive site selection, at the macro and micro scale, and careful site preparation can avoid downstream environmental issues such as erosion, runoff, and soil compaction. It also ensures that communities will have access to resilient lands that are more likely to remain healthy in the face of climate change impacts in the future.

<sup>6</sup> UN HABITAT (2012) Going Green: A Handbook of Sustainable Housing Practices in Developing Countries [https://www.unclearn.org/wp-content/uploads/library/going\\_green.pdf](https://www.unclearn.org/wp-content/uploads/library/going_green.pdf)

## GREEN RECOMMENDATIONS

- **Where possible avoid waste** by prioritising repair and upgrade of existing structures.
- **Provide tools** and advice to encourage the reuse of debris and rubble after natural hazards (e.g., wood, concrete, bricks etc.).
- **Use participatory approaches** to design efficient, environmentally and culturally appropriate buildings.
- **Design structures** that maximise energy efficiency through shading and passive ventilation, consider the orientation of the shelter relative to the movement of the sun at each plot.
- **Promote the use** of more sustainable construction materials. Avoid the use of materials that are produced or extracted in environmentally harmful ways or cause pollution.
- **Use locally available materials** where these can be verifiably sustainably sourced.
- **Consider supporting communities** and local industry to sustainably manage local resources that are used as construction materials, for example timber plantation forests.
- **Collaborate with WASH and Shelter** colleagues to create sustainable designs that integrate rainwater and greywater capture, solar power, and [water](#) and [energy](#) efficiency.
- **Where possible, in displacement settings, select designs** that are relocatable and/or can be repurposed as permanent shelters or other structures.
- **Where possible select flat sites** with stable soils and retain as much grass and vegetation as possible to avoid excessive runoff causing erosion. Where this is not possible integrate erosion control and drainage into site plans.
- **Take the environment into account** in your choice of location, avoiding sensitive cultural or ecological sites.
- **Create protection zones** to minimize damage to local ecosystems or cultural heritage sites.
- **Create buffer zones** around high-risk areas, such as seasonal flood plains, to reduce exposure to hazards.
- **Consider climate change forecasts** to ensure the long-term suitability of sites and structures.

## FURTHER INFORMATION

### GUIDANCE

SPHERE standards for Shelter and Settlements, Standard 7: Environmental Sustainability

[https://handbook.spherestandards.org/?handbook=Sphere&lang=english&chapter\\_id=ch008&section\\_id=ref\\_list11&match=environmental%20assessment](https://handbook.spherestandards.org/?handbook=Sphere&lang=english&chapter_id=ch008&section_id=ref_list11&match=environmental%20assessment)

Detailed overview of environmentally sustainable design for material and energy efficiency, flexibility, life span increase and climate adaptation:

Green Recovery & Reconstruction: Training Toolkit for Humanitarian Aid, Green Guide to Construction, WWF & American Red Cross (2010)

<https://envirodm.org/training/eng/green-guide-to-construction>

A handbook for sustainable construction, addressing materials, design, technologies, featuring case study examples: Going Green: A Handbook of Sustainable Housing Practices in Developing Countries UN HABITAT (2012)

[https://www.unclearn.org/wp-content/uploads/library/going\\_green.pdf](https://www.unclearn.org/wp-content/uploads/library/going_green.pdf)

Global Shelter Cluster, Environment Community of Practice:

<https://www.sheltercluster.org/community-of-practice/environment>

Red Cross Red Crescent Climate Centre factsheets:

[Publications – Red Cross Red Crescent Climate Centre](#)

### TOOLKITS

Self-assessment tool to promote sustainable approaches to relief, recovery and reconstruction after natural disasters:

QSAND (Quantifying Sustainability in the Aftermath of Natural Disasters)

<https://www.qsand.org/>

SMAC tool: Shelter Methodology for the Assessment of Carbon

<https://sheltercluster.org/environment-community-practice/shelter-methodology-assessment-carbon-smac>



# Example Sustainable construction in Mozambique

In March 2019, Cyclone Idai displaced thousands of families in Mozambique, and many homes experienced significant damage or destruction. As part of their response, the Mozambique Red Cross and IFRC developed models for sustainable transitional shelters, using primarily biodegradable and locally available materials. In the design process the team considered the environmental impact of the use of local materials, including the availability of sustainable timber. The main structures are made of timber posts with timber planks as a secondary structure. The walls are made of timber with adobe, the floor is compacted earth, and the roof is thatch. These materials did not produce any packaging waste and were familiar to the target community. Each unit takes locally trained artisans 3 weeks to complete, and one unit costs approximately 600 USD. The use of local biodegradable materials means that the shelters will not require expensive decommissioning or waste removal at the end of their life.



Mozambique Red Cross



Mozambique Red Cross



# Example Analysing environmental footprint of emergency shelters, Africa

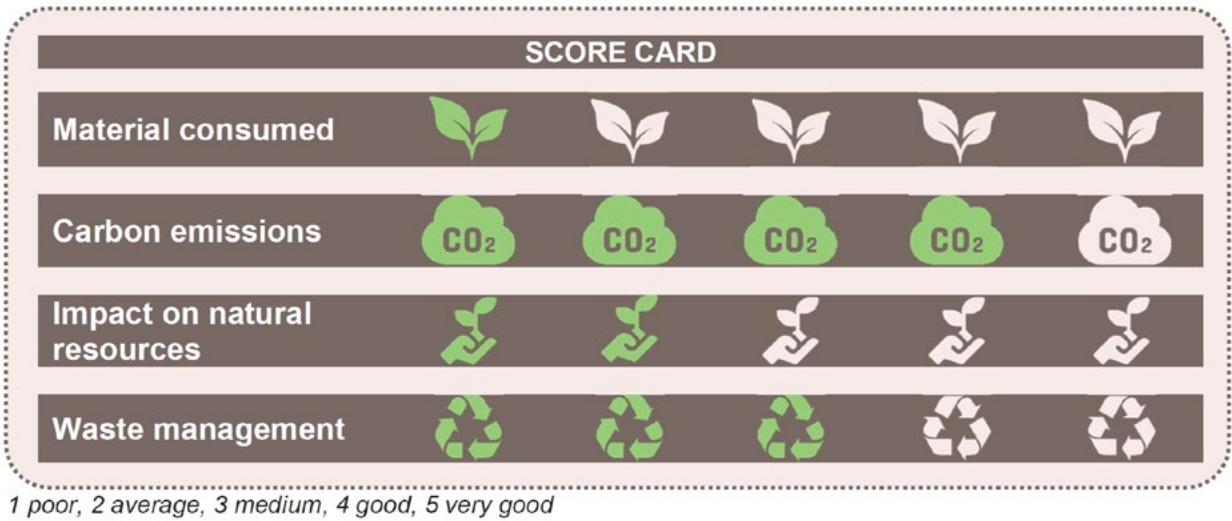
Starting in 2021, the Luxembourg Red Cross (LRC) and IFRC Shelter Research Unit are conducting comparative environmental impact studies of the different emergency shelter models LRC has worked with National Societies to construct – in Niger, Chad, Burkina Faso and Mali. The studies use a scorecard approach to analyse the environmental impact across four criteria: the raw materials used, the carbon emissions generated, the local environmental impact of any local natural materials used, and lastly the question of waste management, or what happens to materials at their ‘end of life’.

The studies are notable for being the first practical use of the new SMAC tool (Shelter Methodology for Assessing Carbon), which is a new carbon emissions calculator for the shelter sector.

The studies show how important it is to consider the different aspects of environmental impact, and not only to focus on carbon emissions. They also confirm what is becoming increasingly well recognised – that waste is one of the hidden problems generated by humanitarian action.

### CONTACT

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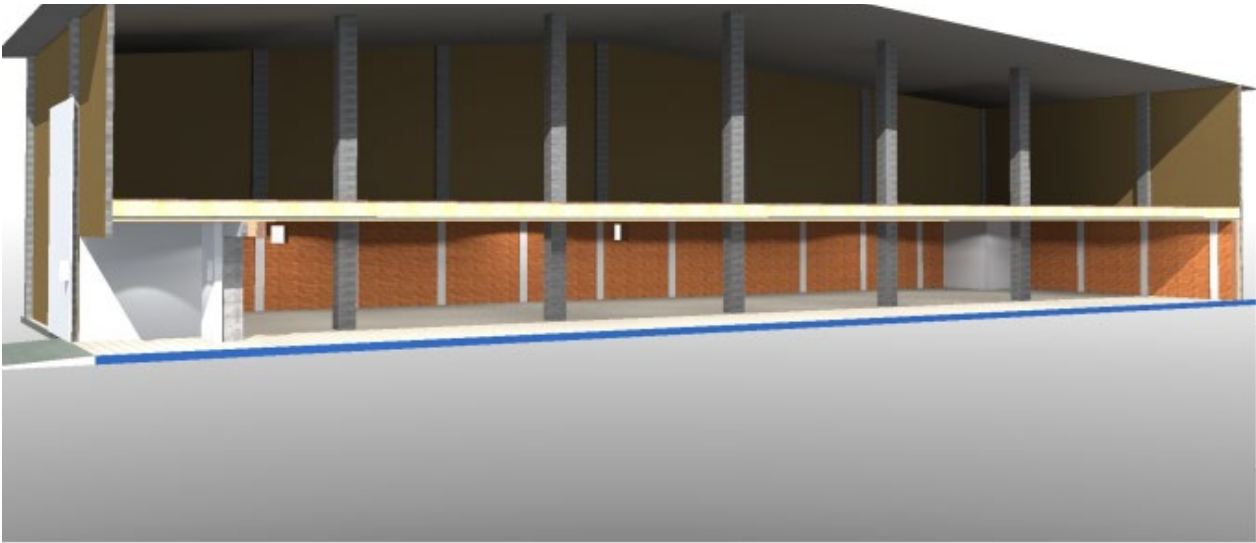


Scorecard approach used to analyse environmental impact of different shelter models

# Example Construction of a green medical warehouse in Niger

In 2020 ICRCs Niger delegation constructed new warehouses for storing medicines and therapeutic food. This requires controlled temperatures below 25°. However, in Niamey temperatures at the hottest time of the year can be up to 47°, and the electricity supply is not stable. The conventional solution with a false ceiling would need 15-16 air conditioners running in shifts, with a diesel-powered generator running up to 12 hours per day providing back-up power. ICRC identified an innovative solution to build a green warehouse, using local technology and materials, aiming to reduce carbon emissions in the long run.

Second walls inside the warehouse are made of stabilised earth bricks, with space left between the walls containing rice husk bags. There is a double false ceiling, with a layer of glass wool on the first ceiling, then a 30cm layer of straw on the roof. Only two air conditioners are required to be run, and only in the peak weeks of heat each year. The construction project required double the investment in the short term, but due to electricity and fuel cost savings the investment is expected to pay back in only 3-4 years. The warehouse needs minimal maintenance and will produce much lower carbon emissions.



Architectural drawing of the green warehouse, showing double false ceiling and second walls. © ICRC, 2020

# ENERGY – FOR FACILITIES

*Solar energy produces 38 times less greenhouse gas emissions than fossil fuels and the costs of solar power systems fell by 82% between 2010 and 2020, making solar a cost-effective option for many operations<sup>78</sup>.*

## Issues

- Local electricity supplies can be unreliable or non-existent.
- Energy efficiency behaviour is often not practiced and leads to significant energy waste.
- Old, poorly maintained and inefficient electrical appliances have high energy consumption.
- Generators require ongoing oversight, maintenance and expensive fuels.
- The use of fossil fuel powered generators, whether for facilities or project activities, produces air pollution and excessive greenhouse gas emissions.
- Spilled fuel and waste oil can be significant pollutants.

## Solutions

A careful and accurate assessment of the energy needs and options for any facility, such as an office or warehouse, can both save money and bring significant environmental benefits. One of the quickest, cheapest, and most effective ways to immediately reduce fossil fuel use and air pollution is through providing the appropriate training, incentives and modern efficient appliances to staff to better practice energy efficient behaviour. This coupled with energy monitoring is also a great way to engage staff in environmental sustainability. A transition to clean energy supplies like solar power can contribute to climate change mitigation by reducing greenhouse gas emissions, and can also make your facility more resilient and require less maintenance.

7 CARE, UN OCHA/UNEP, URD (2020) Eco friendly aid organisations raising our game - Energy <https://www.urd.org/wp-content/uploads/2020/11/ENERGY.pdf>

8 Grafham, Lahn (2018) The Cost of Fuelling Humanitarian Aid, Moving Energy Initiative, Clean energy for refugees <https://www.chathamhouse.org/sites/default/files/publications/research/2018-12-10-Cost-s-Humanitarian-Aid2.pdf>

## GREEN RECOMMENDATIONS

- **Conduct staff energy efficiency training** to encourage behaviour such as turning off lights and computers and appropriate use of air-conditioners and heaters.
- **Install energy conserving technology** such as ceiling fans and solar water heaters.
- **Conduct a local cost/benefit analysis** of possible energy options for project activities, it may cost less in the long run to use solar power.
- **Carefully consider local technical capacity** before investing in complex solar systems involving battery banks as these require skilled oversight and maintenance and end-of-life planning to dispose of batteries safely.
- **Energy assessments** are needed to select the best energy systems, but these can be complicated so seeking expert advice upfront is likely to save money in the long-term.
- **Where it is practicable connect to existing electricity grids** and consider supporting upgrades and improvements to the existing systems.
- **Where existing electricity grids are not available, consider solar** or solar hybrid systems instead of completely relying on fossil fuel generator systems.
- **Enable communities** to invest in solar or other appropriate renewable energy technologies as part of reconstruction projects, whether at community level or as part of household shelter projects.
- **Where a fossil fuel generator is the most practical option**, avoid waste by ensuring the capacity of the generator is well matched to the needs of the facility.

## FURTHER INFORMATION

### CASE STUDIES

Case study about the installation of a solar power supply system:

Compendium of good practices for a greener humanitarian response, Solarizing a humanitarian hub, European Commission (2021)  
[https://www.urd.org/wp-content/uploads/2021/06/DOC\\_EU\\_ENVIRONMENT\\_COMPENDIUM\\_EN\\_250621.pdf](https://www.urd.org/wp-content/uploads/2021/06/DOC_EU_ENVIRONMENT_COMPENDIUM_EN_250621.pdf)

### RESEARCH PAPERS

Detailed elaboration on the cost effectiveness of green energy supply systems in the humanitarian sector:

The Cost of Fuelling Humanitarian Aid, Moving Energy Initiative, Clean energy for refugees Grafham, Lahn (2018)  
<https://www.chathamhouse.org/sites/default/files/publications/research/2018-12-10-Costs-Humanitarian-Aid2.pdf>

### GUIDANCE

Discussion of strategies to support humanitarian projects with off-grid photovoltaic systems, among others solar lamps:

Off-grid Solar PV Power for Humanitarian Action: From Emergency Communications to Refugee Camp Micro-grids. Franceschi, Rothkop, Miller (2014):  
<https://www.sciencedirect.com/science/article/pii/S1877705814010480>

Elaboration on five long-standing challenges with clean energy solutions and suggestions on how to address these issues:

EmPowering Africa's Most Vulnerable, Access to solar energy in complex crises, Norwegian Refugee Council (2020)  
[https://ehaconnect.org/wp-content/uploads/sites/2/2020/10/empowering-africas-most-vulnerable\\_norcap\\_bcg.pdf](https://ehaconnect.org/wp-content/uploads/sites/2/2020/10/empowering-africas-most-vulnerable_norcap_bcg.pdf)

# Example Solar power supply for offices in the Bahamas

After Hurricane Dorian hit in 2019, the Bahamas Red Cross Society invested USD \$70,000 in a solar tie grid system to power its headquarters office. A solar tie grid system was selected because the building was connected to the existing main utility power grid. The tie grid allows the building to make and use its own solar power, while also adding any extra solar power to the main power grid for everyone to use. In addition, since the building remained connected to the main power grid there was no need for a back-up battery power system, which makes the solar tie grid cheaper and easier to maintain. The solar tie grid system can produce almost 40,000kWh of electricity most days, which is around 50% of the headquarters office energy consumption during normal conditions. It is estimated that the payback period will be five years, after which the system will start to generate annual cost savings of approximately USD 14,000. The project was initially funded through the Hurricane Dorian Emergency Appeal, and the number of solar panels was later doubled with additional bilateral assistance from the American Red Cross. <https://www.youtube.com/watch?v=GfpMRGzXH6g>



Bahamas © IFRC



# WASTE

*In developing regions, like sub-Saharan Africa, waste volumes can be reduced by over 60% just by separating and composting organic waste<sup>9</sup>.*

## Issues

- Natural disasters can generate large volumes of mixed waste that can be difficult to remove and potentially hazardous to manage.
- When sectors do not consider waste reduction from the outset, relief items generate large amounts of waste from packaging, including single-use plastics.
- When the life cycle of electronics is not considered before purchasing, communities can be left with a large amount of e-waste that cannot be safely disposed of locally.
- Local waste management systems and cultural practices are often not suited to dealing with imported, inorganic solid waste material.
- Inappropriately managed waste can negatively impact the health and wellbeing of communities by increasing disease vectors, releasing toxic chemicals, and increasing disaster risks, for example if waste material blocks drainage the risk of floods is increased.
- The delivery of inappropriately packaged relief supplies has been stopped in countries where single-use plastics are banned, significantly delaying the delivery of emergency assistance to communities.

## Solutions

Understanding the volume and type of waste generated by projects, or likely to be imported during a response operation, will help identify the best approach to manage it. Investing in improvements to any existing local waste management systems can help to absorb any increase in waste related to a response. It can also provide long-term benefits to the local community by improving their overall waste management capacity, and recycling systems can create lasting livelihoods opportunities if correctly planned. Reducing the importation of waste by relief supplies and associated packaging can be best done during the procurement stage and improves efficiency in transport and warehousing. More and more countries are introducing bans on single-use and other kinds of plastics and waste materials, so reducing and improving the packaging of relief items also helps ensure that the delivery of relief items is not stopped or delayed.

<sup>9</sup> UNEP (2018). Africa Waste Management Outlook. United Nations Environment Programme, Nairobi, Kenya.

## GREEN RECOMMENDATIONS

- **Analyse** the amount and composition of waste that will be generated by the operation or project.
- **Work with communities** to promote waste separation into organic, recyclable, and other, should be done as early in the collection process as possible, and preferably by households. Just separating out organic waste for composting can significantly reduce waste volumes and this can easily be integrated into other project activities.
- **Solid waste**, and particularly disaster waste, may contain hazardous or toxic materials. If you suspect these are present in your waste immediately seek expert advice. Such hazardous material may include asbestos in disaster waste, medical waste, chemicals including batteries and petrochemicals, and poorly treated sewage sludge.
- **Where possible link to and strengthen local waste management** systems, including formal and informal recycling initiatives that contribute to a local circular economy. These can be integrated into any project or operation.
- **Support communities** to better manage and recycle waste, including disaster waste and debris, through the provision of training, equipment and space to carry out activities.
- **Carefully consider the true value chains**, existing systems and potential markets in any cost-benefit analysis for recycling projects that are intended to be financially self-sustaining.
- **Reduce packaging** on relief items and other materials as early in the supply chain as possible. Making reduced packaging part of the initial purchase agreement or repackaging items to remove excess waste prior to shipping.
- **Wherever possible reduce the size and weight of packaging** and use recyclable and biodegradable materials.
- **Consider Cash & Voucher Assistance (CVA)** as an alternative to distribution of physical items, when feasibility and environmental responsibility has been assessed.
- **Avoid purchasing** or distributing single use plastic items.
- **Avoid single use water bottles** unless local practices make consumption of network water unlikely. If possible, purify water locally.
- **Ensure** that any medical waste disposal meets accepted standards for safe management of waste from health-care activities.

FURTHER INFORMATION

GUIDANCE

Specific waste guidelines for each sector with practical and detailed advice:

Managing solid waste, Sector specific guidelines for the Red Cross Red Crescent IFRC (2020)  
<https://ehaconnect.org/wp-content/uploads/sites/2/2020/08/Managing-solid-waste.pdf>

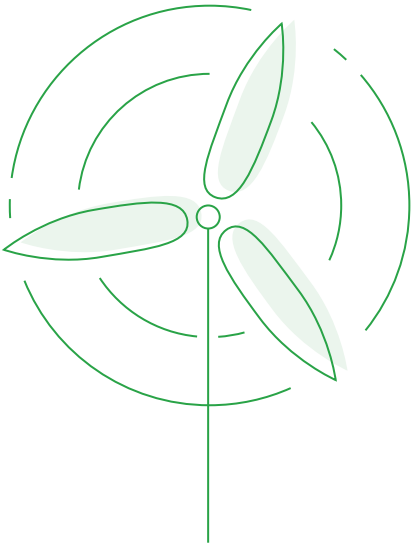
Detailed information on impacts and management of different types of disaster waste, as well as a framework for disaster waste management and contingency planning:

Disaster Waste Management Guidelines, UN OCHA (2013)  
<https://eecentre.org/wp-content/uploads/2019/05/Disaster-Waste-Management-Guidelines-6.pdf>

Solid waste management in emergencies, WHO (2013)  
[https://www.who.int/water\\_sanitation\\_health/emergencies/WHO\\_TN\\_07\\_Solid\\_waste\\_management\\_in\\_emergencies.pdf?ua=1](https://www.who.int/water_sanitation_health/emergencies/WHO_TN_07_Solid_waste_management_in_emergencies.pdf?ua=1)

Technologies for disposing of healthcare waste UNEP (2012)  
[IETC\\_Compndium\\_Technologies\\_Treatment\\_Destruction\\_Healthcare\\_Waste.pdf \(unep.org\)](https://www.unep.org/ietc/ietc-compendium/technologies/treatment-destruction-healthcare-waste.pdf)

Medical Waste Management, ICRC (2020)  
<https://www.icrc.org/en/doc/assets/files/publications/icrc-002-4032.pdf>



# Example Waste: Plastic recycling in Kenya

In 2016 the Kenya Red Cross Society began a recycling project in cooperation with the ICRC and IFRC and the Ministry of Environment, Water and Natural Resources. The main goal of this project was to reduce solid waste in the Dadaab refugee complex, in which the bulk of waste is non-biodegradable. Camp residents were mobilised to collect, sort, and pre-process plastic for sale to recycling companies in Nairobi. In 2018, 2019, and 2020, 24 tons, 28 tons, and 22 tons were sold respectively. This kept a large volume of solid waste out of the local environment and reduced the uncontrolled open burning of plastic, while generating KSH 2.4 million (approximately USD 21,660) in income. Overall, 16 recycling workers have been trained (8 from both the host and refugee communities), and this has become a source of livelihood for young adults and women.



Kenya 2019 John Bundi, Dadaab



Example

Household waste to value solutions, Lebanon



Kanika Groeneweg-Thakar

Since 2015 Lebanon has struggled with a waste management crisis, with much of it being dumped into make-shift landfills (open dumps), into water ways and the Mediterranean Sea, or indiscriminately burned by residents looking to get rid of it in any way possible. The Lebanese Red Cross (LRC) observed that much of the waste generated within the Informal Tented Settlements that they support was of an organic nature, mostly the result of kitchen scraps. In 2021, LRC, supported by Swedish Red Cross, equipped households with two 240L composting bins, a bag of topsoil and vegetable seeds, with advice on how to generate rich, organic compost. Two bins allows for simultaneous composting and use of organic matter for gardening. Not only were households able to reduce odors and vector risks presented by unmanaged waste, they could also reduce their expenditures on food by growing many household staples such as fava beans, cucumbers, parsley, eggplant and mint. Follow-up monitoring has indicated that the activity has also helped to build stronger cohesion within the community through joint gardening efforts and sharing of produce.

# LAND

*75 billion tonnes of earth's soil are lost to erosion every year, but protecting and restoring land and vegetation can be a cheap and easy way to stop this process<sup>10</sup>.*

## Issues

- Many humanitarian projects and activities can cause environmental damage through poor management of the land and natural resources. This can result in a long-term negative outcome for communities particularly in terms of food and water security and livelihoods.
- Often built and engineered solutions can have a negative environmental impact and require maintenance which requires ongoing management and financial input beyond the project cycle.

## Solutions

When implementing projects, particularly early in emergency operations, it is important to treat land with sensitivity and avoid unnecessarily rapid changes. Maintaining vegetation through hand-clearance of construction sites, or restoring or reforesting degraded land and other vegetation, will prevent erosion and loss of topsoil, create green job opportunities, and protection from wind and surface flooding. Preventing erosion also protects local water sources and stops the formation of dangerous erosion-gullies. Considering the use of Nature-based Solutions instead of built infrastructure can protect or restore ecosystems and the benefits they provide to communities. Protecting or enhancing local forests, wetlands or other wild spaces protects communities' access to important resources such as wild foods, traditional craft materials and medicine and other non-timber forest products.

<sup>10</sup> Global Soil Partnership Endorses Guidelines on Sustainable Soil Management <http://www.fao.org/global-soil-partnership/resources/highlights/detail/en/c/416516/> (2017).



## GREEN RECOMMENDATIONS

- **Avoid the creation of land degradation** and soil erosion issues by carefully managing construction projects and maintaining ground cover vegetation and soil.
- **Hand clearance of construction sites** can take longer but also provides jobs and makes it easier to keep ground cover and trees wherever possible.
- **If the soil is weak and easily erodible** plan and construct drainage and erosion control measures as early as possible, once erosion starts it can be very hard and expensive to stop it.
- **Livelihood interventions** that involve the distribution of livestock or introducing new crops and plant species must assess the potential biological security and ecosystem impacts .
- **Agricultural and pastoral livelihood interventions** should be sustainable and conserving of water and soil, and improve climate resilience.
- **Utilizing Eco-DRR methods**, such as tree planting and wetlands for flood protection, can enhance the natural environment while providing long-term risk reduction.
- **Introducing Nature-based solutions** to replace or enhance built infrastructure such as sewage treatment or water purification can be both environmentally and fiscally sustainable.
- **Supporting the communal management** of natural resources can increase resilience and sustainability and encourage more equitable decision making and resource distribution.
- **Reforestation or eco-system protection** activities are a useful method of restoring an overexploited resource, reducing erosion, creating habitat for other flora and fauna and offsetting greenhouse gas emissions.
- **Reforestation activities require secure land tenure**, ongoing care and maintenance of the trees and an agreed management plan, to address drivers of deforestation and avoid exploitation of the resource.
- **Reforestation activities** have the potential to provide opportunities for community engagement and green employment through developing tree nurseries, selling saplings, replanting etc.
- **Support communities** to map and manage their non-timber forest products, these are often an excellent source of emergency food and support resilient sustainable livelihoods.
- **Cooking energy schemes** involving firewood or another biomass are almost never sustainable, they must be carefully analysed and planned before any implementation.

## FURTHER INFORMATION

### **GUIDANCE**

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The Nature Navigator: A handbook for DRR practitioners. IFRC, 2022 (link to follow)

Massive Open Online Course (MOOC) on Nature-based Solutions for Disaster and Climate Resilience. UNEP / Partnership for Environment and Disaster Risk Reduction (PEDRR)  
<http://www.pedrr.org/mooc>

### **CASE STUDIES**

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Examples of land degradation and impacts from Haiti:

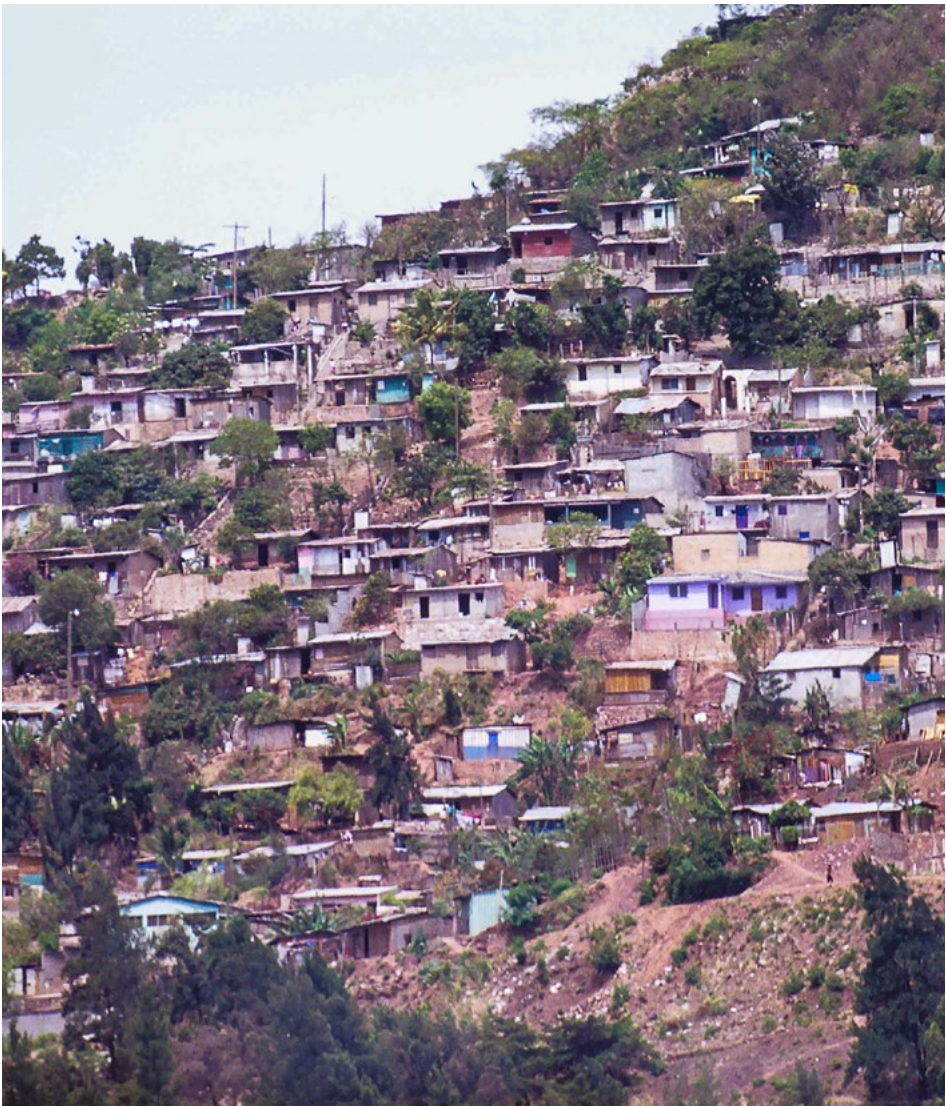
Environment and Humanitarian Action, Country Study, Haiti UNEP/OCHA Joint Environment Unit (2016)  
[https://reliefweb.int/sites/reliefweb.int/files/resources/Haiti\\_EHA\\_Study\\_-\\_20160120.pdf](https://reliefweb.int/sites/reliefweb.int/files/resources/Haiti_EHA_Study_-_20160120.pdf)

Recommendations for land management near refugee camps in Uganda:

Restoring natural capital through tree-based interventions to reduce social tensions in humanitarian settings. World Agroforestry (2019)  
<https://ehaconnect.org/wp-content/uploads/sites/2/2019/06/1.-Restoring-natural-capital-through-tree-based-interventions-to-reduce-social-tensions-in-humanitarian-settings.pdf>

# Example Landslide prevention in Honduras<sup>11</sup>

The Honduran Red Cross (HRC), with the support of the Swiss Red Cross, implemented a community-based disaster risk management program in Olancho, Honduras. The goal was to stabilise the soil in areas that were prone to landslides. The HRC worked with communities to map the locations where landslides were likely to occur. Then, together with the community, HRC implemented a drainage and ground-cover restoration project. Between 2010–2018, 230 landslide hazard sites were stabilized. Drainage canals were dug to direct runoff water safely while vegetation, such as vetiver grass and valerian herbs, were planted to stabilize the soil and slow down water running down slopes. These were combined with activities around agroecology to support local livelihoods. An assessment in 2018 showed that over 80% of the sites had maintained their ground cover, protecting over 3000 people from landslides.



Honduras © IFRC

<sup>11</sup> See published case study: <https://www.wocat.net/library/media/122/>



# Example Greening ‘half-moons’ in Niger

Niger Red Cross included natural resource management actions under an IFRC Disaster Relief Emergency Fund (DREF) operation as a starting point to improve community resilience. A water capture project, using ‘half-moon’ water retention structures, was included as a cash-for-work programme in the DREF. This provided communities with urgently needed cash during a drought and, in the longer-term the half-moon structures capture rainwater, helping to make pasturelands more productive. The technique of half-moon basins originated in Niger and is a common tool to prevent desertification, recover desert lands, and enable agricultural production. Dug with shovels and pickaxes, they are semi-circular basins 3–6 m in diameter. These are arranged on gentle slopes and in a staggered arrangement (see photo). They catch the rain and let it sink into the ground, enabling grass to grow and turn barren land into greener pastures. Half-moon basins are effective for areas of less than 600 mm of rain annually. In Niger, the newly greened areas are mainly used for cattle grazing. With manure added, they can enable the production of around one ton of sorghum grain per hectare. This is an example of how a response action that integrates natural resource management can, over time, evolve into green recovery and help increase community disaster resilience.



Niger © IFRC

# WATER

*Without better water management, 700 million people worldwide are predicted to be displaced by a lack of clean water by 2030. It is vital to ensure that our response operations do not contribute to future crises<sup>12</sup>*

## Issues

- Providing clean water for community or camp use can over-exploit local freshwater sources, particularly groundwater, causing irreversible loss of water supply.
- Water pumping and delivery systems that depend on fossil fuel generators, can be expensive in the long-term and can cause excessive greenhouse gas emissions.
- Over exploitation or pollution of water can significantly impact food security by damaging aquatic food sources and limiting water availability for agriculture.
- Poorly managed and maintained facilities, such as fuel depots and vehicle workshops, can cause chemical or biological pollution of soil and freshwater, and damage ecosystems.

## Solutions

Water is a vital and sensitive natural resource and essential for the lives and livelihoods of all communities. Careful planning is necessary to ensure it is protected and not over-exploited by our activities. The provision of clean safe drinking water to communities is a key component of emergency response, and when this is done in a sustainable way, that minimises water waste and fossil fuel use, it can also contribute to longer-term development aims. Sustainable water supply and water management should be holistically integrated into a response, for example, by constructing shelters to allow for rainwater capture and capturing grey water to support gardens for food security and livelihoods. Landscape-level water protection and provision projects can combine water provision systems, that are designed to allow for water conservation and easy monitoring, with activities like soil conservation and reforestation around the water source, which helps keep the water clean. This can improve the overall quality and quantity of water that communities can access over time.

<sup>12</sup> Global Water Institute, 2013

## GREEN RECOMMENDATIONS

- **Where possible avoid duplication** by connecting to, supporting, and strengthening existing water supply and sanitation systems.
- **Prioritise use of solar electricity**, or other renewable energy sources, for water pumping. Where possible avoid the use of batteries in solar pumping systems.
- **An aquifer assessment should be conducted** before groundwater abstraction. If this is not possible, given emergency response timeframes, then it should be part of the follow-up planning.
- **Minimize and avoid trucking of water** or provision of bottled water.
- **Integrate rainwater and greywater** capture into the design of new structures and shelters.
- **Consider livelihoods interventions** that include landscape-level water protection and sustainable water management activities.
- **Educate targeted communities** to avoid waste and inefficient use of freshwater.
- **Design water supply systems** to avoid waste and for ease of inspection, and include regular inspection and maintenance in project plans to avoid leaks and other water waste, and avoid vectors like mosquito breeding.
- **Locate WASH facilities**, especially sanitation and sewage treatment, away from flood prone areas and from drinking water sources.
- **Be aware that even treated, biologically safe, sewage** is still high in nutrients which pose significant risk to freshwater environments. Never put any kind of treated biological waste into freshwater, dispose of it on land where plants can safely take up the nutrients.
- **Consider greener approaches** to the safe treatment of faecal sludge in mass sanitation contexts, like biodigesters. These can even create value out of faecal waste, such as fertiliser or biogas.
- **Avoid contamination of freshwater** environments by water treatment chemicals such as flocculants and chlorine; in particular ensure chemical stores are secure including from disaster risk.
- **Work with partners to link water provision** with sustainable land management interventions and [Nature-based Solutions](#) (e.g. wetlands restoration) to protect water sources in the long-term.
- **Decommission WASH facilities** that are no longer in use in an appropriate and safe way to prevent contamination of the local environment, such as groundwater.



## FURTHER INFORMATION

### **GUIDANCE**

Suggestions for protecting water resources in a WASH project: Water, Sanitation and Hygiene (WASH) Environmental Considerations, WWF (2016)  
[https://wwfint.awsassets.panda.org/downloads/water\\_sanitation\\_and\\_hygiene\\_wash\\_environmental\\_considerations.pdf](https://wwfint.awsassets.panda.org/downloads/water_sanitation_and_hygiene_wash_environmental_considerations.pdf)

A short presentation on solar water system maintenance and operation: Operation & Maintenance in Solar Powered Water Schemes - A quick overview, IOM (2021)  
[https://energypedia.info/images/e/e5/Operation\\_and\\_Maintainance\\_in\\_Solar\\_Powered\\_Water\\_Schemes\\_2021.pdf](https://energypedia.info/images/e/e5/Operation_and_Maintainance_in_Solar_Powered_Water_Schemes_2021.pdf)

### **TOOLKITS AND E-LEARNING**

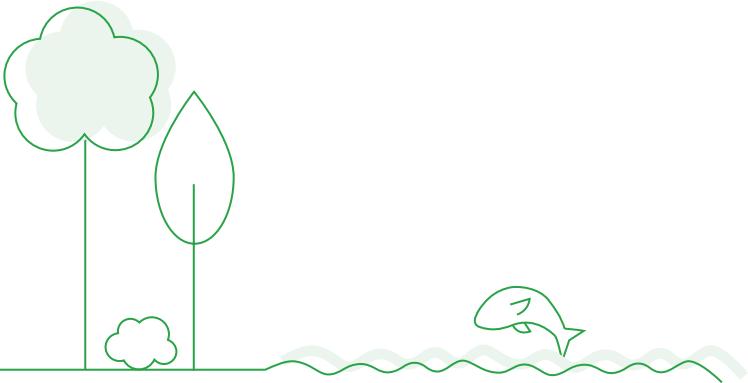
An e-training and toolkit on solar water provision:

Safeguard Water, GIZ and partners (regularly updated)  
[https://energypedia.info/wiki/SPIS\\_Safeguard\\_Water](https://energypedia.info/wiki/SPIS_Safeguard_Water)

Webinar on Powering WASH with case studies from ICRC and UNICEF:

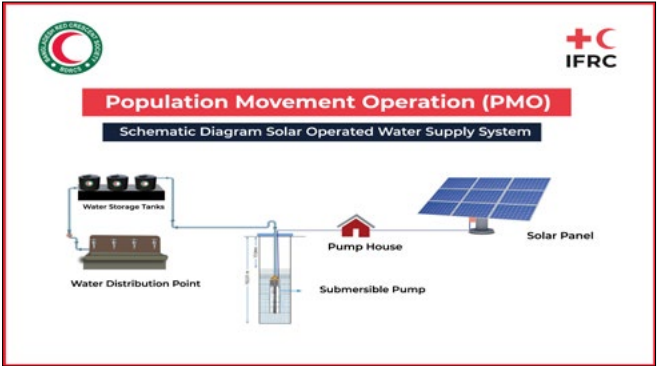
Renewable Energy for Water Supply in Humanitarian Settings  
[https://energypedia.info/wiki/Webinar\\_on\\_Powering\\_WASH\\_:Renewable\\_Energy\\_for\\_Water\\_Supply\\_in\\_Humanitarian\\_Settings](https://energypedia.info/wiki/Webinar_on_Powering_WASH_:Renewable_Energy_for_Water_Supply_in_Humanitarian_Settings)

Evaluation of Biogas Sanitation Systems in Nepalese Prisons. ICRC, 2010  
[www.susana.org/\\_resources/documents/default/2-1023-zurbrugg-iwa2805-dewats-surabaya-final.pdf](http://www.susana.org/_resources/documents/default/2-1023-zurbrugg-iwa2805-dewats-surabaya-final.pdf)



# Example Solar powered water supply systems in Bangladesh

In late 2017, the camp settlements in Cox’s Bazar, Bangladesh, grew rapidly, leading to a rapid increase in the need for safe drinking water. As part of the Cox’s Bazar Population Movement Operation, Bangladesh Red Crescent Society implements a water supply project. Solar energy is being used to power the water networks for their project. This allows for water to be provided without the negative effects and high cost of fossil fuels generators and takes advantage of a resource that is both renewable and freely available. Solar panels were used to power a submersible pump that transferred water to storage tanks and then to water distribution points. This supplies 20 L of safe drinking water to 100 people per tap per day. The Bangladesh Red Crescent Society considered the environment during all aspects of the construction of the system, selecting an appropriate site and avoiding the removal of trees. To make the system durable and easy to maintain the underground pipe system uses HDPE (High Density Polyethylene) Pipes rather than iron, which has a tendency to become rusty. The water quality is tested by trained community volunteers as well as in the water quality monitoring lab. Based on a value for money estimate of the cost of building and maintaining the solar power system versus a diesel generator system, it is estimated that the solar power system is 3.5 times less expensive over the next 20 years with estimated savings of 173,386 USD (based on current fuel prices).



Bangladesh © IFRC

# Example Faecal Sludge Treatment in Bangladesh



Bangladesh, 2019 © Farzana Hossen / British Red Cross

In 2018 and 2019 pilots of new and more sustainable Faecal Sludge Management (FSM) methods were conducted in Cox's Bazar, Bangladesh, to deal with the waste generated by the mass sanitation response. The first was a multi-treatment aerobic system initiated by Bangladesh Red Crescent Society with the support of IFRC. This project began with treatment of 5,000 litres of wastewater per day, but by 2021 had expanded to sustainably treat 30,000 Litres of wastewater per day, with a Solar Power System to operate the plant. The waste is safely treated with no chemicals and the final liquid is released after a series of tests.

An anaerobic system has also been in place since 2021, when the Bangladesh Red Crescent with the support of British Red Cross, Swedish Red Cross, and Urban Waters, CDD Society constructed a new decentralized wastewater system for a further 15,000 litres per day. This process uses solar power to transfer sludge/wastewater into drying beds to dry the sludge, which is then incinerated, the ashes are safe and can be used for gardening purposes. Both methods provide, new, greener FSM options in protracted contexts, and can safely manage the waste of tens of thousands of people.

Globally, IFRC seeks to incorporate FSM as a standard technical competency, to serve the WASH sector as a whole in mass sanitation contexts, like camps or urban crises. There are currently few methods for short-term, green FSM that can be deployed in an emergency, and this is a gap that must be closed.

## CONTACTS

William Carter (IFRC) – [william.carter@ifrc.org](mailto:william.carter@ifrc.org)

# ENERGY – HOUSEHOLDS

*In Bangladesh, studies have shown that providing clean, healthy, LPG cooking fuel in humanitarian contexts only adds 10% to the cost of food assistance, this saves lives and reduces firewood collection by over 80%<sup>13</sup>.*

## Issues

- Globally, 3 billion people still cook over an open fire, but household energy needs are often ignored by humanitarian agencies, particularly in emergency response operations.
- Where modern fuels or sufficient electrical supply are not available, households are forced to use poor quality fuel like wood and charcoal for their cooking energy.
- Use of poor-quality cooking fuels causes smoke and air pollution which negatively impacts health and wellbeing, especially of women and children.
- Collection of wood and production of charcoal is a major cause of deforestation and land degradation.
- Collecting wood at great distances from home puts women and girls at risk of gender-based violence.
- A lack of sustainable affordable energy for lighting and communication negatively impacts quality of life, livelihoods and education outcomes.
- The provision or local production of poor quality cookstoves can be expensive and ineffective in improving fuel efficiency.

## Solutions

When analysed properly, the energy needs of households and communities can be understood and appropriate support can be provided to meet these needs in a healthy, sustainable, and equitable manner. This is especially important to do in displacement contexts. In some cases, it is most effective to support the extension of existing energy networks to reach remote communities, and thereby allow the response or project to contribute to longer-term development aims. Where electricity networks do not exist, solar power can now easily, and increasingly cheaply, meet most household electricity needs for lighting and charging communication devices such as mobile phones. An emphasis on the provision of modern cooking fuels, like bottled gas, will have immediate health benefits for women and children and reduce excessive greenhouse gas emissions to a degree that cannot be achieved in any other way. Alternatively, when carefully planned, other measures like firewood provision, and fuel-efficient cooking technology can also help reduce deforestation.

<sup>13</sup> UNHCR Bangladesh



## GREEN RECOMMENDATIONS

- **Analyse** how households cook food and what they use for lighting, focusing on the resulting environmental impacts.
- **Where possible, in urban or rural development contexts, promote** the connection to, and development of, local electricity and gas supply networks.
- **Provide solar lights** and lamps and charging stations to households where appropriate. However, make sure to consider what happens at the product's end-of-life and avoid generating e-waste.
- **Where necessary supply or supplement cleaner fuels**, such as bottled gas, to reduce the pollution-related health problems and negative environmental consequences of firewood and charcoal.
- **If firewood must be used**, ensuring it is appropriately dry before use will significantly increase efficiency and reduce pollution.
- **If firewood or charcoal must be used**, consider improving access to improved cookstoves that are more fuel-efficient (they should be independently tested models that meet IOS standards of cooking efficiency). This can also be done through market and/or CVA interventions.
- **Provide alternatives to purify water** so that households do not have to boil it before drinking.
- **Educate households** about fuel efficient cooking, for example soaking pulses before cooking to reduce cooking time.
- **Ensure households** have the appropriate equipment to practice energy conservation, for example well-fitting lids for cooking pots.
- **Provide culturally and locally appropriate** staple food varieties that need less time to be cooked.
- **Work together with other actors** to ensure that cooking fuel needs can be met without causing harm to the environment.
- **As clean energy technologies are rapidly advancing**, keeping up to date with new green technologies, such as advances in e-cookers, will ensure that National Society can offer communities the best options to meet their energy needs.

## FURTHER INFORMATION

### CASE STUDIES

Compendium of good practices for a greener humanitarian response, European Commission (2021)  
[https://www.urd.org/wp-content/uploads/2021/06/DOC\\_EU\\_ENVIRONMENT\\_COMPENDIUM\\_EN\\_250621.pdf](https://www.urd.org/wp-content/uploads/2021/06/DOC_EU_ENVIRONMENT_COMPENDIUM_EN_250621.pdf)

Quantification of the effects of using wood-fuel in displacement settings:

Traditional fuels in a humanitarian setting. Case study of the Nyarugusu refugee camp, Kigoma region, Tanzania. UNEP DTU (2017)  
<https://unepdtu.org/publications/the-true-cost-of-using-traditional-fuels-in-a-humanitarian-setting-case-study-of-the-nyarugusu-refugee-camp-kigoma-region-tanzania/>

### RESEARCH PAPER

Market-based cooking energy provision example:

Cooking in Displacement Settings Engaging the Private Sector in Non-wood-based Fuel Supply, Moving Energy Initiative, (2019)  
<https://www.chathamhouse.org/sites/default/files/publications/2019-01-22-PatelGross2.pdf>

### CATALOGUES

Catalogue of tested clean cooking stoves and fuels:

Standardizing the Performance of Clean Cooking Solutions, Clean Cooking Alliance, Clean Cooking Catalogue  
<https://cleancooking.org/research-evidence-learning/standards-testing/>



# Example Fuel-efficient cook stoves in Namibia

In 2018, the Namibia Red Cross Society began an EU-funded project in partnership with the Spanish Red Cross with the aim of mitigating negative impacts of climate change within rural vulnerable communities, which included promoting the use of energy efficient technologies. The project was supported by the Ministry of Agriculture, Water and Forestry, and the Namibia Energy Institute - Namibia University of Science and Technology. In Namibia, the project occurred over 26 months with more than 500 stoves constructed, with a total of 2,505 people reached.

Local communities were involved in the process of selecting which type of fuel-efficient stove to trial, especially as some proposed models used materials that were too expensive or inaccessible in rural Namibia. The Elephant Cook Stove is a fuel-efficient mud stove constructed from easily available local materials (clay soil, sand, ash, and straw). Compared to a traditional open fire stove, it uses 50–60% less firewood. Due to the design of the stove, families are also less exposed to pollutants. The stoves were placed in houses selected by community members (usually community leaders) and were accessible to anyone who was interested. With its reliance on local materials and simple design, the Elephant Cook Stove is easily reproducible in other contexts. There was such a high acceptance rate of the stove that despite the official end of the project, roll-out of stove construction continued.



Namibia © IFRC

# Example LPG provision in Bangladesh

After the influx of refugees in 2018, in Cox’s Bazar, Bangladesh, there was extensive firewood collection from the local forest. It was estimated that at the beginning of the emergency, over 730 tons of firewood was collected each day, this would have led to more than 1,100 football fields of forest clearance per year. Important wildlife habitats in the area were at serious risk and there was increasing social tension with the host communities who were concerned about their natural resources and livelihoods. To counter this, the Bangladesh Red Crescent Society worked with partners to provide alternative clean cooking fuel. The fuel, in the form of liquefied petroleum gas (LPG), was made available through a voucher system and immediately, significantly reduced the collection of firewood from the nearby forests. In addition, LPG also had measurable impacts on nutrition and health due to the reliable access to cooking fuel and the prevention of indoor air pollution. Importantly, removing the need for people to travel long distances to collect firewood significantly reduced sexual and gender-based violence risks, as well as improving education outcomes for children who previously spend many hours collecting firewood.



Bangladesh © IFRC

# CASH AND VOUCHER ASSISTANCE

*Between 2015 and 2020 the use of cash transfers and vouchers in humanitarian assistance almost tripled to represent 18% of international humanitarian assistance, therefore planning environmentally responsible cash programmes is a key part of green humanitarian action<sup>14</sup>.*

## Issues

- It is often assumed that Cash and Voucher assistance (CVA) is a greener option, however, this is not always the case if local markets are not able to provide sustainably produced products of high quality and durability.
- Locally available products can be lower in quality and have shorter product-life cycles, resulting in higher greenhouse gas emissions and more waste.
- CVA transfers environmental responsibility away from organizations to the targeted populations who may not be able to make sustainable choices, leading to the purchase of less sustainable products with shorter lifespans.
- CVA can lead to environmental damage, such as deforestation caused when cash assistance is provided for shelter purposes.

## Solution

Environmental considerations can be fully integrated into the market assessments conducted before any CVA project is selected, to ensure sustainability. Incentives and environmental education for target communities can empower them to make sustainable choices. Working with local suppliers to improve the sustainability and quality of their products can ensure that recipients, and the wider community, have lasting access to more sustainable products.

<sup>14</sup> CaLP (2020), The State of the World's Cash 2020

## GREEN RECOMMENDATIONS

- **Systematically integrate** considerations of the environment in CVA assessments, policies and strategies; selection of cash, voucher or in-kind modalities; and build awareness among cash practitioners.
- **Cash programmes can support environmental initiatives** such as reforestation, usefully contributing to the rehabilitation of the local environment after a crisis.
- **Before designing a CVA programme**, especially recurring transfers or sector specific CVA, it is important to assess the following aspects:
  - » **Analyse the needs**, consumption habits and preferences of local communities including their household energy needs, and the local environmental context.
  - » **As part of CVA market assessments**, analyse the availability of sustainable products, and the quality and environmental standards of local production.
- **Use the environmental checklist** linked below to help you with assessment, planning and monitoring of your CVA project.
- **Combine CVA with complementary activities** such as technical assistance and education on environmental issues and sustainable production and consumption, for staff as well as for beneficiaries and suppliers.

- **Consider if a ‘mixed modality’** approach that combines CVA and in-kind distributions would be best to avoid environmental harm.
- **Promote and incentivise sustainable consumption** choices through targeted communication and information campaigns.
- **Use vouchers or conditionality** to promote specific sustainable purchases, for example to purchase clean cooking fuel and stoves.
- **Connect and partner with multiple stakeholders**, actors and organizations, including the private sector, to:
  - » **Take a “market-based” approach** and reinforce sustainable local production, storage and distribution.
  - » **Encourage more suppliers** to provide sustainable products by linking these with voucher systems.
- When monitoring CVA throughout the project cycle, consider any environmental impacts (such as on waste, water, deforestation etc), and not only how the cash assistance was spent.

## FURTHER INFORMATION

### RESEARCH PAPERS

Study on the environmental impacts of cash and voucher assistance, potential trade-offs between different forms of assistance and recommendations on how to increase the positive impact of CVA:

The environmental impact of cash and voucher assistance. Brangeon, Leon (2020)  
[https://www.urd.org/wp-content/uploads/2020/11/RapportENVCash\\_En\\_GroupeURD\\_2020.pdf](https://www.urd.org/wp-content/uploads/2020/11/RapportENVCash_En_GroupeURD_2020.pdf)

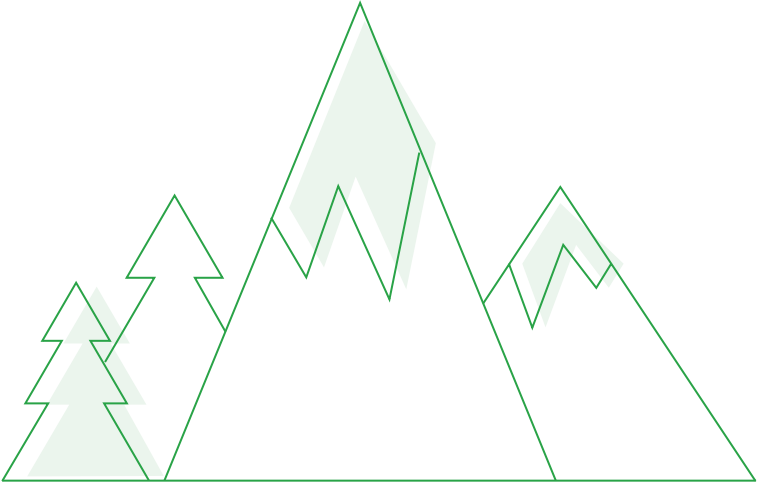
Comparative analysis on the impact of CVA and in-kind assistance in different countries, regarding different standard relief items, including recommendation on how to minimize environmental impacts:

UNHCR, ARUP (2020) Review of environmental impact of Cash Based Interventions and in-kind assistance, Executive Summary.  
<https://www.unhcr.org/5fce26c44.pdf>

### CHECKLISTS

Environmental checklist for the assessment, planning and monitoring of CVA programs:

UNHCR and UNEP 2022  
[Checklist CVA and Environment - The CALP Network](#)





# Example Cash for green assets in Kenya

In the Kinango sub-county in Kenya the Kenyan Red Cross, in collaboration with WFP and the Government of Kenya, has undertaken an environment-based cash for assets programme. The area had suffered several droughts which affected food and water security. Through KRC's Protracted Relief and Recovery Operations (PRRO) the beneficiaries have dug water capture pans and planted trees. In return, beneficiaries receive cash compensation for the work they have done on the projects. The improvements to the water supply and soil conditions, coupled with the introduction of more drought resistant crop varieties has significantly improved food crop production and food security. It has also allowed the establishment of a vegetable farming and tree nursery project which earns income for target communities. This has had the added environmental benefit of allowing target communities to stop making charcoal. charcoal making had previously been the main source of income in the area, but it exposed people to harmful air pollution and left their land exposed to soil erosion and massive deforestation. Now through the cash for assets program charcoal making is greatly reduced and the area is being widely reforested.



Kenya © IFRC



# ANNEX

## Example Basic Environmental Screening of a Project

Although environmental screening of any humanitarian project or operation can also be done using specialised tools like the NEAT+, the example below is included in order to demonstrate how you can do environmental screening of any project by yourself, without using a tool.

A National Society plans to assist remote communities by providing clean drinking water. They plan to do this by drilling boreholes and setting up water kiosks at the village level.

### Step 1. Identify the environmental *ins and outs* of the activity

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#### Ins

- Cement and other materials to construct and secure bores and water kiosks
- Generators and bore pumps
- Fuel and oil for generators
- Greenhouse gas emissions from vehicles and generators
- Waste from food and supplies for project staff and bore drilling providers

#### Outs

- Extraction of groundwater
- Local materials used to construct water kiosks

#### Changes

- Increase in wastewater flow into nearby waterways
- Possible increase in livestock due to provision of water
- Possible increase in gardening or other agriculture due to increased provision of water

## Step 2. Determine the environment’s sensitivities

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**Climate:** Arid, single wet season

**Topography:** Low hills, scrubby sparse vegetation, and cropland. Fragile, erodible soils.

**Natural resources:** Range and crop lands, no other major natural resources.

**Land use:** Livestock rangeland farming and some seasonal subsistence crop farming.

**Water sources:** Mostly seasonal streams with some permanent rivers. Groundwater is known to exist in shallow aquifers.

**Local population:** Local population are largely divided into small village communities. There is no electrification or solid waste systems. Some households use small solar panels and generators for occasional use. Pit toilets are the primary sanitation approach.

**Local Industry:** Largely subsistence farming, with some local cash sales of livestock, excess crops and charcoal.

**Access:** Access to villages is on poor roads and will require 4wd vehicles.

**Protected Areas:** A National Park borders the area bringing some tourist traffic and resulting in some conflict between livestock farmers and park rangers.

**Key cultural sites:** There are no known key cultural sites, most villages have a religious building often built of local materials.

## Step 3. Determine the key impacts

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- Extracting water from un-assessed aquifers in a dry environment may be unsustainable.
- Generators for pumps will require fuel and oil, this will result in ongoing costs and emission of greenhouse gasses.
- Limited natural resources for construction and bore drilling. Materials will need to be imported using suitably capable trucks.
- There are no systems for dealing with solid waste at the site.

## Step 4. Identify improvements

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- Assess aquifer system before drilling and establish ongoing monitoring of the aquifer.
- Avoid excessive use of groundwater.
- Use solar panels to power bore pumps rather than generators.
- Limit the greenhouse gas emissions by reducing the amount of travel to the location.
- Manage waste and remove non-biodegradable solid waste brought to the location.

## Step 5. Revise the project plan

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Improvements to the project plan include:

- Pre-assessment of the aquifer system
- Ongoing monitoring of the aquifer
- Community education programmes on water management and conservation
- Form community water-boards to determine equitable distribution and use of water
- Use of solar panels for water pumping and increased water storage capacity
- A dedicated logistics manager to coordinate travel and movements for the project
- Inclusion of an “Environmental Responsibility” requirement in the bore-drilling tender documents and the final contract including:
- Waste management plans
- Use of appropriate vehicles
- On-site accommodation for drilling crews to reduce travel
- Work plan including transport of staff and material



The International Federation of Red Cross and Red Crescent Societies (IFRC) is the world's largest humanitarian network, with 192 National Red Cross and Red Crescent Societies and around 14 million volunteers. Our volunteers are present in communities before, during and after a crisis or disaster. We work in the most hard to reach and complex settings in the world, saving lives and promoting human dignity. We support communities to become stronger and more resilient places where people can live safe and healthy lives, and have opportunities to thrive.

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