



Democratic Republic of Congo

Environmental Country Profile for Shelter and Settlements

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DRC Shelter Cluster Environmental Country Profile for Shelter and Settlements

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Suggested Further Actions

The **DRC Shelter Cluster Environmental Country Profile** has been developed during an ongoing crisis. As a result, several further actions to improve the integration of environment into the humanitarian response were identified. These actions are listed below as suggestions, recognizing that not all can be implemented immediately and there are external factors, particularly funding and partner capacities, which may slow implementation.

- Given the reported frequency of floods, landslides and, in the case of sites near Bukavu, volcanic eruptions, DRC Shelter Cluster partners should work with other stakeholders, e.g., CCCM, Civil Protection, local government, etc., to establish flood, landslide and volcanic eruption risk reduction, warning, preparedness and response plans. As these events likely impact outside camps, surrounding communities should be involved in plan development and operation. These plans may include flooding in Kinshasa, as the Cluster will likely be called on to assist when future flooding takes place.
- UNHCR, as Shelter Cluster Coordinator, should verify with the l'Agence Congolaise de environnement whether site-specific or categorical environmental reviews are required for sheltering operations.
- The Shelter Cluster partners should conduct standardized rapid environmental reviews and develop environment management plans for all sheltering operations, in compliance with humanitarian standards and general good practice.
- More detailed mapping should be done for IDP camps located near parks as a basis for assessing the impact of these camps on park resources. See Section 12, below.
- The results of the household survey conducted at the same time as the NEAT+ assessment should be analyzed and incorporated into the profile. Further, these results should be used to update the combined assessment results (Section 9.4) and, if necessary, used to update the environment management and monitoring plans.
- The EIMP should be shared with Cluster partners and other stakeholders (e.g., WASH, Food Security, Health) and partners encouraged to integrate the results into their assistance programs.
- The issues identified in the EIMP should be integrated into the Shelter Cluster strategy and HNO/HRO process.
- The Cluster should review the EIMP on a quarterly basis.
- The Shelter Cluster should work with OCHA and other clusters to integrate environment-focused indicators into the Humanitarian Programming Cycle. This process should be driven by an analysis of environmental risks associated with the humanitarian response and include results from the DRC Shelter Cluster Environment Management *Plan* (see Section 10).
- The DRC Shelter Cluster should work with OCHA, the CCCM Cluster, REACH and other partners to develop a robust IDP-focused remote sensing and GIS system which will:
 - Aid in planning camps.
 - Assess the environmental impact of camps, initially using analysis of site density (population x area) and norms for area per person and expanding as capacity develops to assess demand on natural resources (e.g., water, forest products, etc.), growth, adequacy of basic services (e.g., water points, clinics, toilets, etc.), erosion and downstream environmental impacts.
 - Define boundary zones around protected areas where camps should not be placed.
 - Define optimal and acceptable camp locations, based on camp standards,

- In areas where displacements can be expected, e.g., North Kivu, and
 - On a near-real-time basis for unanticipated displacements.
- A mapping of possible camp sites, based on humanitarian standards and the Camp Management Toolkit guidance, should be developed for areas most frequently affected by displacement, and shared with the Government.
- Incorporate remote sensing and GIS tools into site planning and to monitor the impact of a site on the internal and external environment.
- Expand training on the use of remote sensing tools and site selection and environmental management to include local Government authorities.
- Site planning should include structural measures to reduce the risks from flash flooding, including changing the rectangular camp layout to match the form of the land, creation of retention basins with plantings, hardened barriers to direct flood waters away from shelters and other buildings (including latrines) and warning signs for flood water passages.
- Fire management should be part of site management plans and guidance on safely managing fire risks in camps should be developed and applied progressively across sites. Additional information can be provided by the NGO Kindling (see <https://www.kindlingsafety.org/>).
- Humanitarian partners should develop DRC-specific guidelines on site decommissioning, drawing on available guidelines and involving government authorities in the process. Some partners have or are implementing site decommissioning activities (as indicated above). These experiences should be used to develop a clear strategy on site decommissioning for use by all humanitarian programming stakeholders.
- When guidance is available, a score card assessment of current shelter designs should be completed, and steps taken based on the assessment to reduce environmental impacts.
- The Shelter Cluster should develop repair kits and medium term “durable” shelter designs for shelters which may be exceeding functional life. This is specifically the case for shelter sites which have been in existence for more than 12 months and are expected to remain in existence for at least an additional 12 months. (Emergency shelters built using standard plastic tarps can be expected to degrade to below minimum shelter standards by 24 months.)
- The impact of using forest products for shelter construction on local natural resources and land use customs should be examined.
- Consider establishing stockpiles of basic shelter and NFI assistance in locations near likely needs for rapid deployment. Given recent demands on the Shelter Cluster for assistance outside the east, one stockpile should be positioned in or near Kinshasa.
- Work with potential shelter and NFI manufactures in East Africa to raise standards to levels which meet humanitarian standards and permit procurement within this region. This would likely reduce the environmental footprint of assistance and shorten delivery times. This effort would best be done in cooperation with humanitarian shelter and NFI assistance providers working in East Africa, including UNHCR, IFRC, ICRC and others. This effort should be coordinated with the NFI scorecard work, as per Section 18.2, below.
- Conduct environmental scorecard assessments of NFI items when a methodology has been released by the Global Shelter Cluster.

- The Cash Working Group should integrate environment-related issues and analysis into the decision-making process on whether to use cash or provide physical assistance.
- The Cash Working Group and the Shelter Cluster should develop specific guidance for shelter and NFI items.
- Consider, with the CCCM and WASH Clusters, options for expanding waste and debris management in shelter sites, as environmental and livelihoods support activities.
- Engaging in DRR and nature-based solutions to hazards in DRC may not immediately look to be part of immediate humanitarian response. However, the DRC Shelter Cluster should explore how to integrate DRR and nature-based solutions into these immediate responses in line with the concept that humanitarian assistance should play a role in avoiding future disasters. To this end, it is suggested that a DRR and nature-based solutions working group be established within the Cluster to explore practical options in more detail.

1. Why this Environment Profile?

1.1. Integrating Environmental Information into Humanitarian Response

Much of the impact of a crisis and most of the response involves the environment. It is being increasingly understood that not considering the environment in humanitarian response can reduce the impact of the response and lead to greater harm on the part of those affected by a crisis.

When responding to disasters and other crisis humanitarian organizations have limited time or means to collect, analyze, and integrate information on the environment into responses plans and operations. This can happen even where considerable information is available from public sources, local organizations, and experts, and from previous responses.

The classical approach has been to send in a team of experts to advise on environmental aspects of a response. However, this is only possible for major disasters, leaving a gap for small to medium events.

DRC Shelter Environmental Country Profile (hereafter, the **Profile**) uses a different approach: collecting, summarizing and, where necessary, providing additional analysis of response-relative environmental information before a crisis so that it is available to responders when needed. This *ready-reference* approach focuses more on creating a catalog of what information is available than providing a detailed analytical report.

However, the **DRC Shelter Environmental Country Profile** varies from this basic model in that it has been developed during on-going humanitarian operations. As a result, this **Profile** included environment-related analysis which can be used during ongoing humanitarian operations. As well, this **Profile** includes suggested actions to improve the environmental footprint and impact of shelter and settlements-related operations. These opportunities are identified in the specific sections under the heading of **Suggested Further Actions** and summarized above.

1.2. Development of the Profile

The DRC Shelter Cluster Country Environment Profile was developed from mid-2022 to mid-2023 through a series of on-line consultations, surveys, exchanges of draft documents and a field mission to Kinshasa in March 2023. A major challenge in developing the Profile was a constantly evolving humanitarian crisis in eastern DRC, which required a significant level of engagement from Shelter Cluster staff.

1.3. Organization of the Profile

The **Profile** is divided into two main sections:

- A **Profile Overview** which generally provides:
 - Short topical summaries of information useful in incorporating environmental issues into the humanitarian response in DRC and
 - An identification of suggested actions which integrate the environment into ongoing and future shelter and settlements operations.
- An **Annex**, which provides, where necessary, more information to complement the topical summaries provided in the **Profile Overview**.

1.4. Updating of the Profile

Because the **DRC Profile** has been developed for an on-going crisis, it will likely need to be updated on at least an annual basis. This update can take place in combination with revisions to the Humanitarian Need Overview (HNO) and the Humanitarian Response Plan (HRP). At the same time, any significant change in the nature of humanitarian operations in DRC should also lead to an updating of the **Profile**.

2. Country Context

2.1. Current Crisis

Condensed from **Plan de Réponse Humanitaire : République Démocratique du Congo 2022**

(https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/hrp_2022-janvier-v2-finale-web.pdf). (Google® translation from the French.)

The Democratic Republic of Congo (DRC) remains one of the most complex and protracted humanitarian crises in the world. This crisis is characterized by five main humanitarian impacts: population movements, acute food insecurity, acute malnutrition, epidemics, and protection issues.

In 2021, armed conflicts and natural disasters continued to cause significant population movements in the east of the country and protection incidents. Access to quality basic services remains very limited, public policies for development and social protection for the most vulnerable are insufficient and deep gender inequalities remain across the country.

At the security level, armed conflicts and violence remain a reality in the east of the country. The violence killed at least 1,147 civilians between January and June (including 240 women and 78 children), an average of nearly 100 civilians killed each month. [From] January to October 2021, 49,661 cases of human rights violations were recorded, of which 35 percent were perpetrated by combatants of armed groups and 22 percent by State agents.

The state of siege introduced in the provinces of North Kivu and Ituri in May 2021 was extended for the twelfth consecutive time by Parliament in November 2021. The main implications of the state of siege relate to the transfer of powers of the civil authorities to military and police authorities, the extension of police powers, the broadening of the powers of military courts, the restriction of certain fundamental rights and freedoms and the suspension of the immunities from prosecution enjoyed by certain persons because of their statute (the provincial deputies).

...nearly three-quarters of the Congolese population remain in a situation extreme poverty, living on less than \$1.90 a day. The country ranks third in the world for the number of people living in poverty and nearly one in six people living in extreme poverty in sub-Saharan Africa live in the DRC.19 inequalities remain between provinces and between urban and rural areas.

Access to sanitation infrastructure and drinking water is still very insufficient and unequal. Challenges in terms of access to basic infrastructure are accentuated by strong population

growth. ... In terms of sanitary conditions, according to the latest national data available, 33.9 percent of the rural population of the DRC have access to developed and protected water points compared to 91.2 percent in urban areas. Only 16.3 percent of families in rural areas have access to toilets and latrines sanitary and 53.6 percent in urban areas.

In conflict zones, agricultural and forest land may be contaminated by explosive remnants of war (ERW) or mines. In the first half of 2021, 1,443 areas with the presence of mines, ERW and other explosive devices were reported in 14 provinces of the country, most of them in South Kivu and Tanganyika.

The following web links provide additional information on the crisis in DRC.

- [DRC Complex crisis](#), ACAPS.
- [The World's Most Neglected Displacement Crises 2021](#).
- [Democratic Republic of Congo](#), International Crisis Group.

Also refer to [ReliefWeb](#) and [Humanitarian Response](#) for current updates on the situation in DRC.

2.2. Environment Overview

Condensed from **Plan de Réponse Humanitaire : République Démocratique du Congo 2022**

(https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/document/s/files/hrp_2022- janvier-v2-finale-web.pdf). (Google® translation from the French.)

Immense natural capital and populations facing environmental risks The DRC has immense natural resources, including 152 million hectares of forest, more than 1,100 minerals and precious metals listed (diamonds, gold, cobalt, coltan, etc.), significant water resources (13 percent of the world's hydroelectric potential), great biodiversity and 80 million hectares of arable land. However, this capital is threatened by deforestation, poaching, demographic pressure and the illegal exploitation of minerals. Natural resources and the environment are both sources of subsistence for Congolese households (at the micro-economic level) but also important for national production (at the macro-economic level).

The issues of access to land and control of natural resources, including mining resources, are intrinsically linked to the various conflicts in the DRC. Land use planning and access to resources is complex due to a double land tenure system with customary and statutory laws which often overlap and cause many disputes. Although the customary regime is not legal in the eyes of the Government, it remains the de facto system under which most people manage and secure access to land and other natural resources, particularly in rural and peri-urban areas. Due to potential contradictions and overlaps between customary and statutory land allocations, insecurity land tenure is a common occurrence in the DRC.

With respect to deforestation,

- *“Much of the forest conversion is driven by small- scale and shifting agriculture, and timber harvest for charcoal production which contributes to deforestation and forest degradation. The growth of large-scale agriculture is limited mainly due to poor development of infrastructure. Main challenges are linked to support development, green energy sources for cooking fuel and alleviating poverty while protecting existing natural forests, and biodiversity.”*
- *“Forest degradation and deforestation is also due to a high reliance of people on charcoal as the main source of energy for cooking, and timber markets beyond the countries' boundaries.”*
- *“Small-scale, shifting agriculture causes over 90% of forest loss [2, 3], particularly for cassava, oil palm, cocoa, and maize [4]. It is projected to increase [5] although large areas of forest still remain[6]”*

- “Significant in DRC, particularly closer to large towns and cities, with estimates of over 90% of the population using charcoal for cooking, due to lack of affordable energy alternatives [6] , although likely more related to degradation than deforestation.”

Source of quoted text: Deforestation Front: Key Facts: The Congo And Central African Republic

(<https://wwfint.awsassets.panda.org/downloads/deforestation-fronts-factsheet-drc-and-car.pdf>). Numbers refer to reference in the original.

3. Shelter, Housing and Settlements

3.1.1. Overview

Refer to Project : **Potentiel des Savoir-Faire Locaux pour Participer à l'Effort de la Réponse à la Construction Locale du Logement en République Démocratique du Congo: Catalogue Abris/Logements** (<https://sheltercluster.s3.eu-central-1.amazonaws.com/public/docs/catalogue-construction-locale-abris-logement-rdc-201909.pdf>) for extensive details on shelter, settlements and related information for the DRC (see map for areas covered). The following text from the report provides a summary focusing on the eastern DRC. The map indicates the focus areas of the study.

The inhabitants of the different regions of the Democratic Republic of the Congo have been able to develop clever solutions to adapt to the contexts and meet their needs by using the resources available locally, and these still occupy a very important place today in the production of their homes. As a result, the country's construction cultures always reflect the diversity of territories, climates, natural resources, whether through the diversity of materials used, know-how and mechanisms for adapting to hazards, and more particularly in rural and peri-urban areas.



Provinces analysées de façon plus détaillée dans ce catalogue

In the study area... the vernacular houses are on one level. There are one-room houses, but usually the houses are formed by several separate constructions: living room-bedrooms, kitchen, toilet, reception, and storage place. These constructions mostly have a quadrangular plan, but can have a circular plan, (north-east of the analyzed zone). Cob and adobe walls are predominant, so in mountainous areas there is also volcanic stone and wooden planks. There are also straw shelters, particularly in the case of transitional shelters for displaced or returned populations. Fired brick is rarely used by low-income households. Roofs made of thatch or other plant fibers dominate except in areas close to cities, where sheet metal is increasingly present.

These constructive cultures are in perpetual mutation with adaptations to the evolution of the context and in response to the modes conveyed by the novelties. Indeed, in cities, constructions in reinforced concrete, cement blocks or baked bricks are increasingly common. These developments tend to increase the vulnerability of the inhabitants. of a part, because these materials are adopted without considering their specificities and technical requirements, which leads to poor quality constructions. On the other hand, because this sudden evolution provokes an abandonment and then a forgetting of traditional knowledge and know-how which nevertheless provided very subtle and economical solutions to the constraints encountered.

4. Key Actors

4.1. DRC Shelter Cluster

See Section 5.6., below.

4.2. Government of DRC

The Ministry of Environment and Sustainable Development is responsible for environmental issues in the Democratic Republic of Congo. For more on the work of the Ministry visit this website <https://medd.gouv.cd/>. The Minister's office is located at 2895, Boulevard du Palais de la Nation. The Secretary General's Office is located at 15, av. Papa ILEO, Kinshasa/Gombe. The Ministry can be reached at the following e-mail address: info@medd.gouv.cd.

4.3. Environmental Sector

Annex 23.1 contains a list of environment-focused organizations in DRC, developed by WWF/DRC. Contact [WWF/DRC](https://www.wwf.org/drc) for more information.

5. Summary of DRC Shelter/NFI Cluster

The Shelter Cluster in DRC intervenes mostly in conflict-stricken areas in service of forcibly displaced persons; especially eastern of the country (Ituri, North Kivu, South Kivu, Tanganyika). The Shelter Cluster was formally activated in January 2020. Before that, shelter coordination took place through a working group under the NFI Cluster led by UNICEF. Today the NFI Working Group is part of the Shelter Cluster led by UNHCR.

There are a total of 70 partners in the Cluster as of May 2023, with 17 partners currently implementing shelter activities in the field, and 29 partners providing non-food items. More information about the Shelter Cluster activities in DRC is available from the following website: <https://sheltercluster.org/fr/response/republique-democratique-du-congo>

The DRC Shelter Cluster has an Environment Working Group composed of the following members or organizations:

- ACTED
- ADSSE
- Red Cross (Luxembourg)
- UN Habitat
- UNHCR

The DRC Shelter Cluster staffing as of the date of this Profile is set out in the table below.

DRC Shelter Cluster Staffing (At national level) (June 2023)				
Position	Name	Email	Phone	Home Organization
Coordinator, a.i.	Laschoni Soki	coord2.rdc@sheltercluster.org soki@unhcr.org	+243 81 030 99 00	UNHCR
Co- Facilitator	Rodriguez Nshombo	cofac.rdc@sheltercluster.org	+243 990 366 577	ACTED
Assoc. Information Management	Remy Kalombo	im.rdc@sheltercluster.org	+243 82 835 23 18	UNHCR
Assoc. Information Management	Heritier Mpamu	im1.rdc@sheltercluster.org heritier.mpamu@reach-initiative.org	+243 81 951 31 28	REACH
Assoc. Information Management	Ambroise Brou	kbrou@unicef.org	+243 827 334 570	UNICEF

6. Disaster Risk Management

6.1. Disaster Management System in DRC

The Government disaster management system in Democratic Republic of Congo appears to be in a state of evolution. A number of disaster-related policies, laws and regulations have been developed since 1994 (see box below).

The country is reported to have a National Strategy for Disaster Risk Reduction and Prevention 2017-2030, which incorporates the following priorities:

- *Promoting the effectiveness of disaster risk management of the decentralized authorities and the local communities;*
- *Strengthening of institutional capacities at all levels as well as that of the populations for disaster risk management;*
- *Strengthening of national coordination of disaster risk management and its key mechanisms;*
- *Optimization of preparedness and strengthening of disaster response capacity at all levels;*
- *Strengthening of risk assessment and monitoring, and early warning and risk information systems at the national level;*
- *Optimization of the status of implementation and all sources of risk prevention and reduction practices at all levels;*
- *Strengthening of regional, sub-regional and international cooperation.*

(Adapted from [National Adaptation Plan to Climate Change \(2022-2026\)](#).)

The [Plan National Strategique de Developpement 2019-2023](#) sets out four objectives concerning humanitarian affairs:

Objective 1: Strengthen human and institutional capacities.

- i. Efficient management of human, material and financial resources;
- ii. Management cooperation and partnership, etc.

Objective 2: Reduce disaster risk and respond to humanitarian crises

- i. Assistance to victims of various natural and/or man-made disasters, technologies and internally displaced persons (IDPs);
- ii. Formation of Trainers in public awareness on the culture of prevention of disasters and other calamities, etc.

Objective 3: Ensure holistic care for disaster victims and recovery community

- i. Staff training in Humanitarian Situation Assessment Techniques in Emergency cases and Vulnerability and Capacity Studies (EVC) in the DRC;
- ii. Development of a humanitarian database by creating a system [of] operational management and analysis of humanitarian information, COGAIH in acronym, etc

Objective 4: Revitalize solidarity

- i. Establishment of Humanitarian Solidarity Services;
- ii. Creation of a Fund for Humanitarian Solidarity, etc.

(Google™ translated from the original French and reformatted.)

Based on [Ministerial Order No. 006](#) (see below), the disaster management in DRC is managed through the Ministry of Social Affairs, Humanitarian Actions and National Solidarity. A General Secretariat of Humanitarian Actions and National Solidarity coordinates overall activities. Under the Ministerial Order, the Direction in Charge of the Management of Natural Disasters and Other Catastrophes is responsible for daily operation of a Center for Monitoring of Humanitarian Alerts at the national level with corresponding units at provincial and local levels. The Ministerial Order also establishes a Fund for National Solidarity and Management of Humanitarian Catastrophes. As the disaster management system in DRC appears to be evolving, some elements of the older laws and regulation in the box below may still be relevant.

Documents on Disaster Risk Management System in the DRC

- [Politique générale du Zaïre sur les catastrophes naturelles de 1994](#)
- [1996 Decree creating the Conseil de la Protection Civile/Comité National de Crise.](#)
- [Programme d'action du Gouvernement de 2012 à 2016](#)
- [Plan d'action pour la gestion de catastrophe en République Démocratique du Congo de 2011 à 2013](#)
- [Central Africa Regional Strategy for Disaster Risk Reduction \(DRR\) and Climate Change Adaptation \(CCA\) - Action Plan approved by the Conference of Heads of State and Government on 25 May 2015.](#)
- [Ministerial Order No. 006/CAB.MIN/AFF.SOC.AH.SN/2022 establishing, organizing and operating a humanitarian watch and alert center in the Democratic Republic of Congo.](#)

6.2. Hazards and Potential Disasters

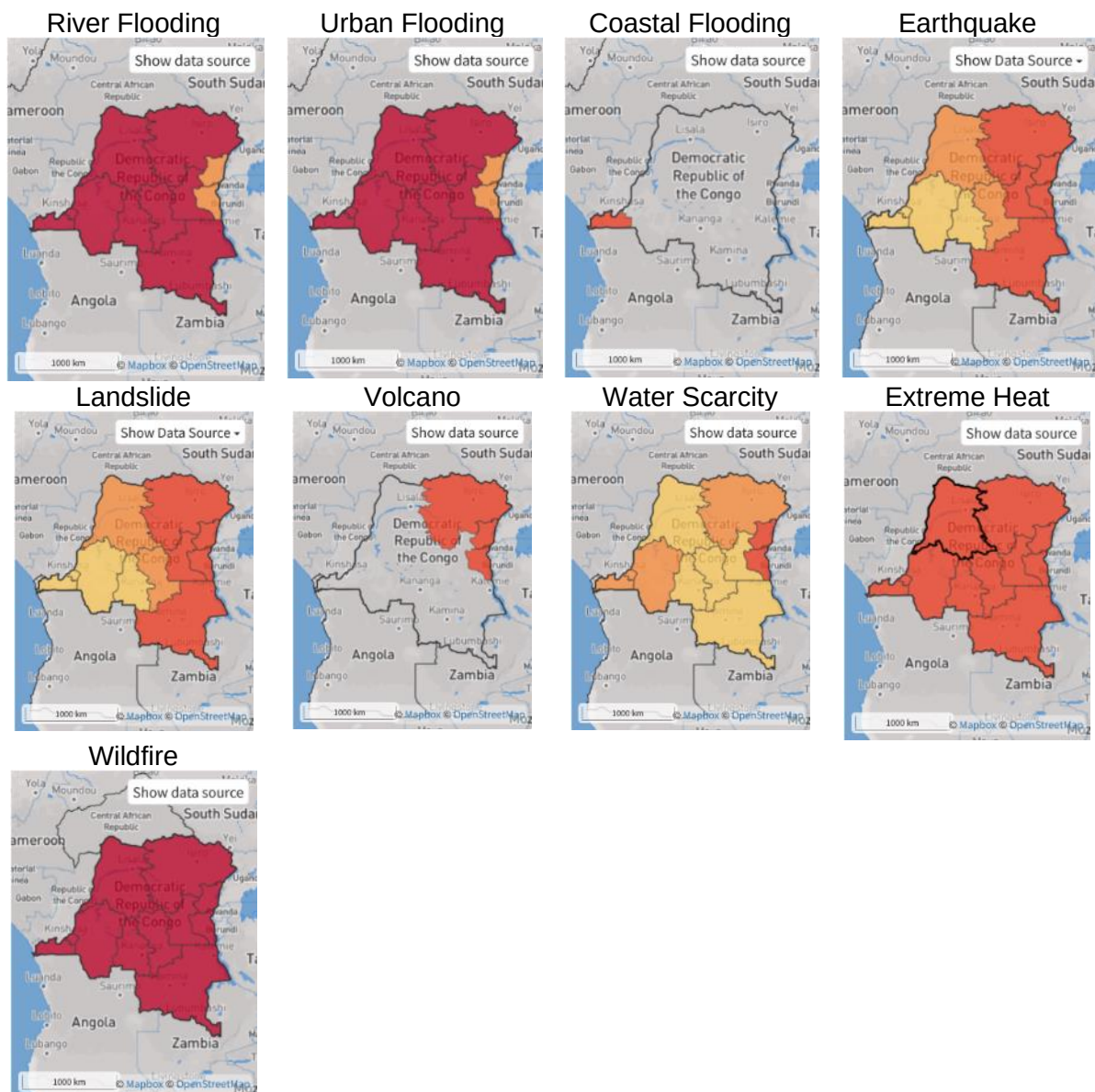
6.2.1. National Overview – Hazards

The report [Cultures Constructives Locales Pour Des Habitats Durables et Résilients](#) contains information on natural hazards in the DRC (page 12). The basic information is summarized below. (Google® translation from the French.)

The Democratic Republic of Congo is the 8th country in the world with more than risk of humanitarian crises and natural disasters (INFORM, 2018). There majority (between 60 and 80%) of people living in the DRC are vulnerable to risks (Mossige et al., 2003). The risk of epidemics (Ebola, cholera, measles, yellow fever, etc.) is also quite high.

- *Floods: This risk is moderate to high in most of the country, being low in the east of the country. Most cities are at high risk of flooding. The people most affected by the floods are the poorest living along large rivers, especially in non-urbanized areas.*
- *Volcanism: The region is home to several volcanoes, including two of the most most active in Africa: Nyiragongo and Nyamulagira. Their activity has a great impact on the environment (927 ha of tropical forest destroyed during the 2010 eruption of Nyamulagira). The Nyiragongo directly threatens the city of Goma, located 15 km from the volcano.*
- *Earthquakes: The eastern part of the country is characterized by strong seismicity. Recently, earthquakes of moderate magnitude hit the region and caused significant damage and many casualties (e.g., earthquake of 2008 in Bukavu-Cyangugu). Due to strong population growth, more and more people and infrastructure are exposed to this risk.*
- *Landslides: This is a major hazard in the east of the country. They can be caused by climatic events (heavy rains), but also by volcanic or seismic activity. The potential impact of these landslides is accentuated by anthropogenic factors, due to the installation houses on unstable slopes.*
- *Swelling Grounds: This type of ground is present in most of the North [of] the country. The expansion in the rainy season and the contraction in the season dryness of these soils can represent approximately 8% of the volume of the land. [As a result] they develop cracks up to 8 cm thick and 90 to 100 cm deep when completely dry. The buildings built in these soils without any special precautions always develop cracks, which can jeopardize their stability. Droughts: Periodic dry spells are common in the south of the country.*

The ThinkHazard web site provides a mapping of, and addition on, hazards in the DRC. The ThinkHazard hazard maps for DRC are provided below. Refer to the DRC segment of the ThinkHazard [web site](#) for more detailed information. In the following maps, red indicates a high hazard level and orange, medium hazard level.



From **Plan de Réponse Humanitaire : République Démocratique du Congo 2023** ([République démocratique du Congo Plan de réponse humanitaire 2023 \(février 2023\) - Democratic Republic of the Congo | Relief Web](#))

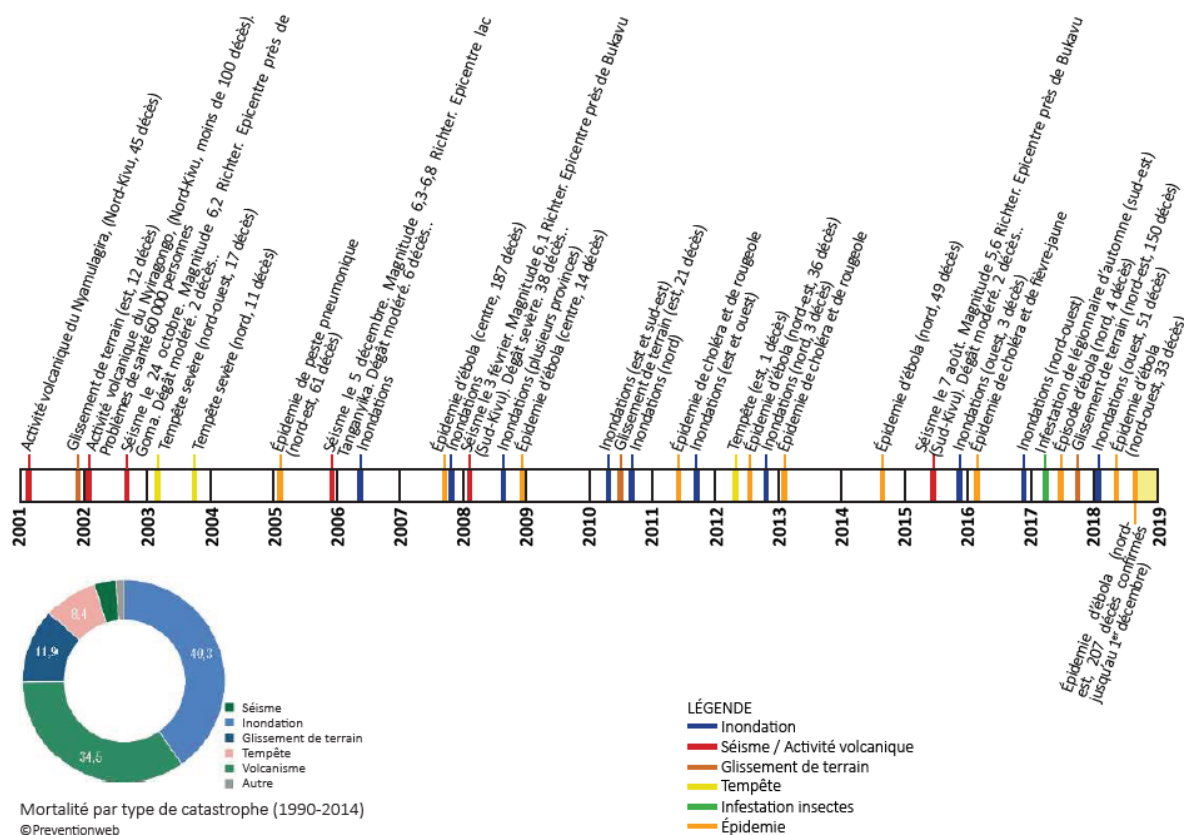
Certain areas of the DRC are particularly vulnerable to natural disasters (sic) and the impact of climate change, such as the banks of the Congo River and its tributaries. 28 For example, during the year 2021 (from January to May), nearly 382 000 people were directly affected by floods caused by torrential rains or rising lake levels in the provinces of Haut-Lomami, Haut-Katanga, and Tanganyika.

Although extensive data is not currently available, reports indicate that fire is a common problem for camps. The high density of some camps together with the easily ignitable nature of some shelter materials means that fires in camps is likely a widespread problem.

Annex 23.1 provides an example of localized flood hazard mapping in the Uvira Health Zone in South Kivu province. This area was affected by landslides in May, 2023 (see <https://reliefweb.int/disaster/fl-2023-000067-cod> and <https://reliefweb.int/map/democratic-republic-congo/rdc-province-du-sud-kivu-territoire-de-kalehe-carte-des-infrastructures-des-zones-affectees-par-les-inondations-du-4-5-mai-2023-18052023>).

6.3. Disaster History

The report [Cultures Constructives Locales Pour Des Habitats Durables et Résilients](#) provides a disaster history for the DRC. A graphic presentation of the disaster history since 2001 is provided below.



Additional information on disasters has been extracted from the EM-DAT disaster database, available at <https://public.emdat.be/>. This data covers the period from 1948 to 2022 and includes disasters due to natural and technological events. The following table summarizes the data from 1984 to 2022¹, with additional data in Annex 23.3.

EM-DAT Disaster Data Summary							
Disaster	# of Events	Disaster	# of Events	Disaster	# of Events	Disaster	# of Events
Transport	174	Epidemic	94	Flood	53	Industrial Accidents	22
Miscellaneous	13	Landslide	9	Earthquake	5	Drought	4
Storm	5	Volcanic ash	4	Wildfire	3		

Note that severe flooding affected the Kinshasa area in [] and South Kivu in May 2023. These events, on opposite sides of the country, demonstrate the challenges posed by natural hazard events for the DRC Shelter and NFI Cluster, which was established to address conflict-related displacement.

6.4. Climate and Climate Change

From: [Climate Risk Profile: Democratic Republic of Congo, Fact Sheet](#), USAID,

¹ See EM-DAT for how the data was collected and limitations in the scope or detail of the data.

DRC's vast territory, including inland lakes, mountains, grassland savanna, and tropical and highland forests, spans multiple climate classifications that can be grouped into three zones

	Landscapes and Rainy Seasons	Temperatures
Zone 1: North & South Kivu, Ituri, northern portions of Kasai, Central Kasai and Tanganyika	Tropical rainforests along the Congo River and its tributaries characterized by two rainy seasons (March–May and September–December), followed by two short dry seasons (June–August and January–February)	Averages range from 24–25°C; limited variability throughout the year
Zone 2: Kinshasa, southern Kasai and southwestern Kasai Central	Mountainous terraces and dense grasslands with predominantly tropical wet and dry climates and a dedicated rainy season (July–August)	Averages range from 24–25°C; limited variability throughout the year
Zone 3: Southeastern Kasai Central, Kasai Oriental, Haut Katanga and southern Tanganyika	Subtropical climates of savannas in the south and southeast with a single rainy season occurring between December–February	Slightly lower but consistent temperatures range from 22–23°C

Historical Climate

Observations since the 1960s indicate:

- Increased temperature extremes: warmest day of the year increased by about 0.25°C per decade.
- Increased frequency of intense rainfall events.
- Increased temperatures of deep waters in Lake Tanganyika by 0.2–0.7°C.

Future Climate

Projected changes include:*

- Temperature increase of 1–2.5°C by 2050 and of 3°C by 2100.
- A rise in minimum temperatures that will exceed the rise in maximum temperatures.
- Continued increased frequency of intense rainfall events and prolonged dry spells
- Possible decreases in dry season rainfall (June–August and September–November) in the southern region of the country by 2050.

For additional information see: [Climate Risk Profile: Democratic Republic of Congo, Fact Sheet](#) and from the [National Adaptation Plan to Climate Change \(2022-2026\)](#).

6.5. Humanitarian Assistance Coordinating Structure

Information extracted from **Plan De Réponse Humanitaire République Démocratique Du Congo** <https://reliefweb.int/report/democratic-republic-congo/republique-democratique-du-congo-plan-de-reponse-humanitaire-2023-fevrier-2023>. (Google® translation from French original.)

Since March 2022, the Humanitarian Country Team (HCT) implemented a new humanitarian architecture which relies mainly on the support center (PDS) set up to improve coordination operational in the provinces, the mechanisms for Provincial humanitarian operational coordination (COHP) in four provinces: North Kivu (Goma), South Kivu (Bukavu), Ituri (Bunia), and Tanganyika (Kalemie), and the humanitarian relays, which are mechanisms of temporary minimum humanitarian coordination. The evaluation was conducted from October 2022 to January 2023 and its recommendations and lessons learned will improve the effectiveness of humanitarian coordination. In addition, the analysis of the capacities of the Clusters carried out in September 2022 highlighted the insufficiency of resources to fund coordination activities sectoral/multisectoral.

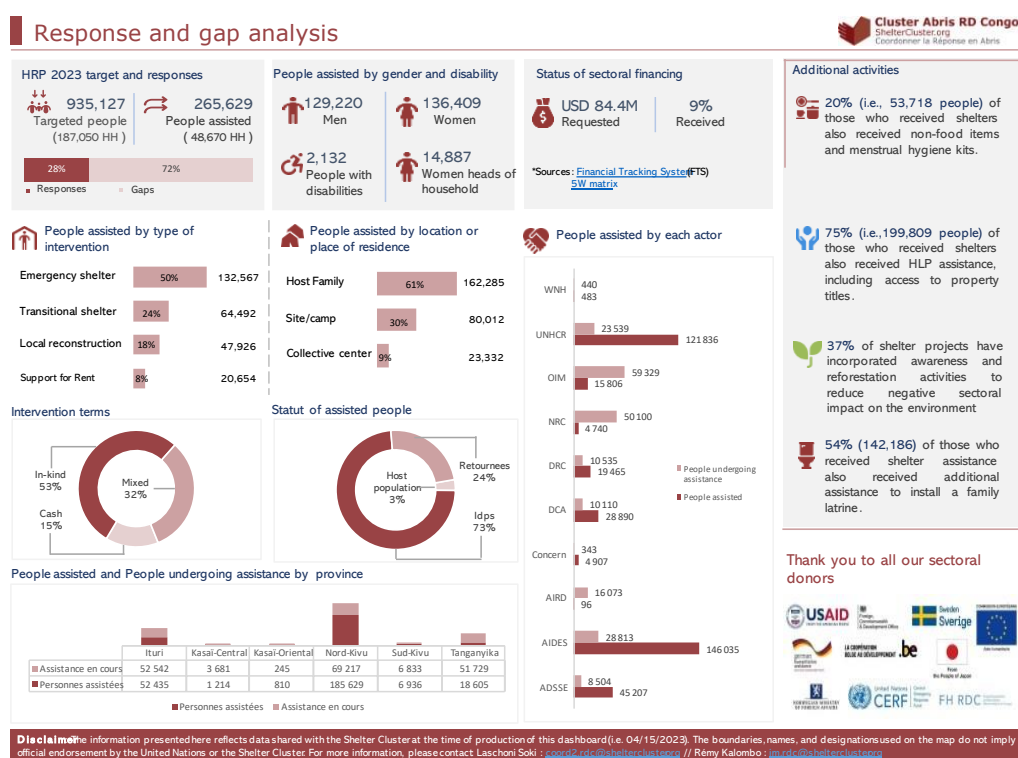
The humanitarian community will begin a reflection for a possible transition from the cluster system to a hybrid coordination system, with the sectors basic services (education, health, nutrition, food security and water and sanitation) under the leadership of reference authorities. It would allow strengthen the link between humanitarian action and the efforts towards development, helping to promote adequate solutions to structural problems that exacerbate humanitarian needs.

Since 2013, the Government of the DRC and the Team humanitarian aid countries have established an information framework and consultation referred to as the National Framework for humanitarian dialogue (CNCH) to establish links between the Government of the DRC and the community humanitarian organization represented by the EHP. It provides synergy effort for proper implementation of the action humanitarian aid in the DRC. At the provincial level, the same structure is activated in provinces affected by the humanitarian crisis (Provincial consultation framework humanitarian – CPCH).

6.6. Shelter and NFI Response

The humanitarian crisis in DRC is characterized by a combination of conflicts in the east of the country which have triggered displacements of various numbers of people over short or longer distances. Given the complex and fluid humanitarian crisis in DRC, the following sources should be used to access the most recent information on the shelter and NFI response: [DRC Shelter and NFI web pages](#), [Reliefweb](#), [The New Humanitarian](#), [Humanitarian Response](#) and news media.

The [dashboard](#) below summarizes Shelter Cluster partners operations and responses in the first quarterly of 2023.



The following maps indicate (1) the presence of shelter and NFI partners in DRC and (2) Humanitarian Response Plan targets and number of actors by operational area.

6.7. Suggested Further Action

At the level of Shelter Cluster and cross-cluster planning:

- Given the reported frequency of floods, landslides and, in the case of sites near Bukavu, volcanic eruptions, DRC Shelter Cluster partners should work with other stakeholders, e.g., CCCM, Civil Protection, local government, etc., to establish flood, landslide and volcanic eruption risk reduction, warning, preparedness and response plans. As these events likely impact outside camps, surrounding communities should be involved in plan development and operation. These plans may include flooding in Kinshasa, as the Cluster will likely be called on to assist when future flooding takes place.

7. Environmental Regulatory Requirements and Institutions

7.1. Lead Government Party

The lead agency submission and approval of environmental assessment reviews and audits is the l'Agence Congolaise de l'Environnement in the Ministry of Environment and Sustainable Development.²

7.2. Environmental Review Procedures

7.2.1. Legal Requirements

- Loi N° 11/009 DU 09 Juillet 2011 **Portant Principes Fondamentaux Relatifs a la Protection de l'Environnement** sets out the need for environmental impact assessments (Article 21), audits (Article 23), and disaster planning (Article 64).
- Decree No. 14/019 of 2 August 2014³ sets out “procedural mechanisms relating to environmental protection; it is the instrument that frames the entire procedure for the conduct of an Environmental and Social Impact Assessment”.⁴ Under Article 18 of this Decree: “Est obligatoirement et préalablement soumis à une étude d'impact environnemental et social, assortie de son plan de gestion, tout projet de développement, d'infrastructures ou d'exploitation de toute activité industrielle, commerciale, agricole, forestière, minière, d'hydrocarbures, de cimenterie, de télécommunication ou autre susceptible d'avoir un impact sur l'environnement”.⁵ The types of activities requiring an environmental assessment include:
 - Toute activité d'excavation et remblayage de plus de dix mille mètres cube (10.000 m3)
 - Tout projet d'aménagement de zones de développement économique et social
 - Tout projet d'exploitation forestière

It does not appear that the law or decree have an exception for crisis or disaster conditions.

7.2.2. Environmental Review Submission and Approval

Further information on the submission, review and approval procedures and process can be found at <https://www.eia.nl/en/countries/democratic+republic+of+congo/esia-profile>.

² <https://www.eia.nl/en/countries/democratic+republic+of+congo/esia-profile>.

³ <http://extwprlegs1.fao.org/docs/pdf/cng140363.pdf>.

⁴ Document cited in **Environmental and Social Impact Assessment (ESIA) of the Congo River Road-Rail Connecting Bridge Construction Project**, https://www.afdb.org/sites/default/files/documents/environmental-and-social-assessments/resume_eies_voies_de_raccordement_pont_route-rail_sur_le_fleuve_congo_en.pdf

⁵ <http://extwprlegs1.fao.org/docs/pdf/cng140363.pdf>.

7.3. Additional Legal Guidance⁶

- Law 011-2002 of 29 August 2002 relating to the Forest Code, which deals with clearing and erosion problems
- Law No. 15/026 of 31 December 2015 relating to Water Resources
- Law No. 007/2002 of 11 July 2002, as amended by Law No. 18/001 of 9 March 2018, relating to the Mining Code and the Mining Regulations of March 2003 laying down the conditions for the opening and exploitation of material deposits
- Legislative Order No. 71-016 of 15 March 1971 relating to the protection of cultural property
- Law No. 15/2002 of 16 October 2002 relating to the Labour Code
- Law 73 - 021 of 20 July 1973 relating to the general property system, land and real estate system, and the security system

7.3.1. Land Ownership

Land ownership is governed [Loi n°73-021 du 20 juillet 1973](#) as modified by [Loi n°80-008 du 18 juillet 1980](#).⁷ On paper, all land is owned by the Government although de facto land ownership and use can be governed by traditional systems as well. When accessing land for short or long term use (e.g., camps) it is important to verify locally that both legal and traditional land ownership and use systems are in harmony on the planned use of a piece of land.

7.4. Suggested Further Actions

- UNHCR, as Shelter Cluster Coordinator, should verify with the l'Agence Congolaise de environment whether site-specific or categorical⁸ environmental reviews are required for sheltering operations.
- The Shelter Cluster partners should conduct standardized rapid environmental reviews and develop environment management plans for all sheltering operations, in compliance with humanitarian standards and general good practice.

8. Ecologically Protected and Sensitive Areas

8.1. Overview

National parks, reserves and other areas of designated environmental importance are managed by the l'Institut Congolais pour la Conservation de la Nature (ICCN). Further information on the ICCN can be found here: <https://www.iccnrdc.org/>.

The map below provides the location of parks and designated reserves. Also see <https://www.google.com/maps/d/viewer?mid=1VUVoy6BWV7ii9KkZIsTjmBmNeCMYBE87&ll=-2.76214921270423%2C21.218843385937483&z=6> for an interactive map.

⁶ Documents cited in **Environmental and Social Impact Assessment (ESIA) of the Congo River Road-Rail Connecting Bridge Construction Project**, https://www.afdb.org/sites/default/files/documents/environmental-and-social-assessments/resume_eies_voies_de_raccordement_pont_route-rail_sur_le_fleuve_congo_en.pdf.

⁷ **Projet : Potentiel des Savoir-Faire Locaux pour Participer à l'Effort de la Réponse à la Construction Locale du Logement en République Démocratique du Congo: Catalogue Abris/Logements** (https://sheltercluster.s3.eu-central-1.amazonaws.com/public/docs/catalogue_construction_locale_abis_logement_rdc_201909.pdf)

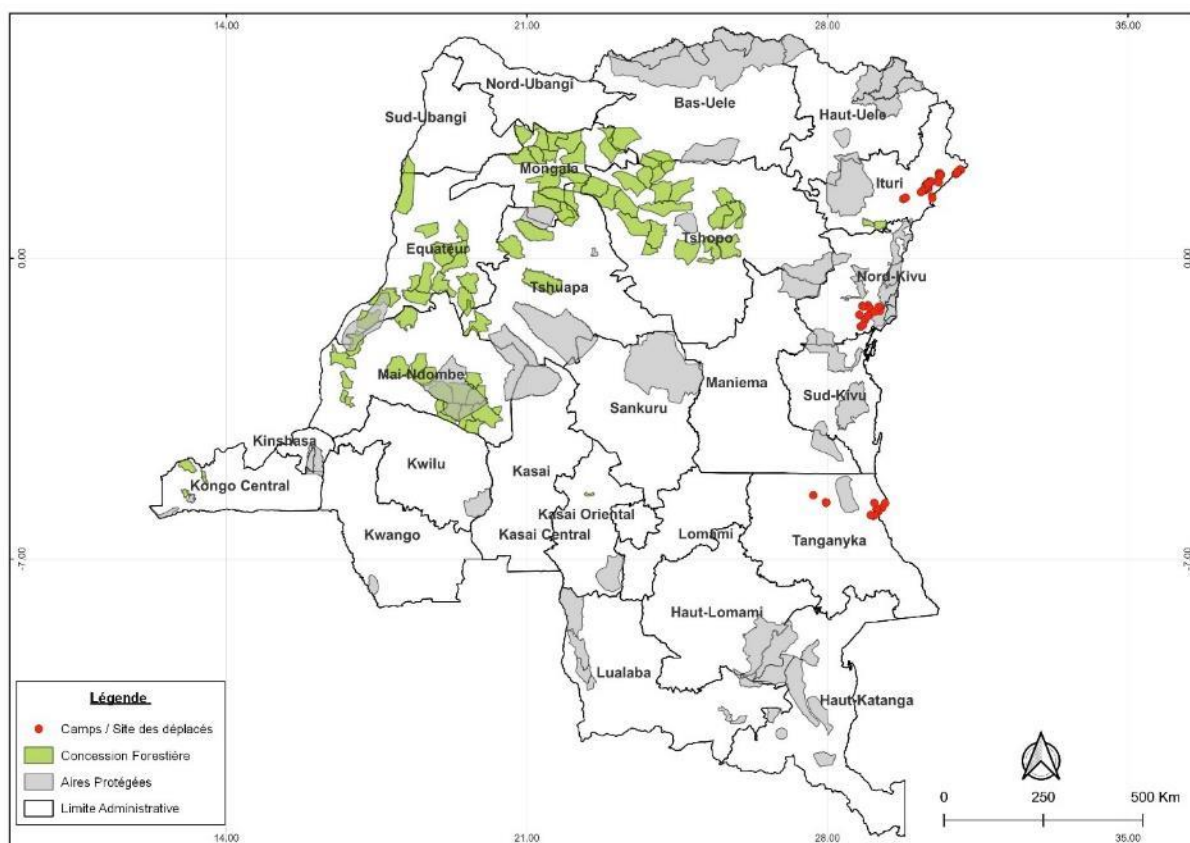
⁸ One review covering all types of camps.



The “Aires protégé” tab on the ICCN web page can be used to access a list of national parks, natural and hunting reserves, and botanical gardens. Annex 23.4 provides the names of national parks, marine parks, wildlife reserves, hunting reserves, Ramsar wetlands of international importance and World Heritage Convention sites in the DRC. Particularly in eastern DRC, many of these locations are near or adjoining IDP sites.

8.2. Co-Location of IDP sites, Parks and Forest Concessions

The maps below, produced in cooperation with REACH, detail the reported location of IDP sites, parks and forest concessions for the country as a whole and for the area of North Kivu.



IDP camps, Parks and Forest Concessions - Whole of Country



IDP Camps, Parks and Forest Concessions - North Kivu

8.3. Suggested Further Action

More detailed mapping should be done for IDP camps located near parks as a basis for assessing the impact of these camps on park resources. See Section 12, below.

9. Humanitarian Response Environmental Impact Assessments

9.1. Rapid Assessment Process and Report

The DRC Shelter Cluster conducted a strategic/programmatic-level environment impact assessment using the Rapid Environment Impact Assessment in Disaster (REA) methodology. The process involved an online assessment of critical environmental issues followed by a ranking of these issues, a review of results and development of an Environmental Management & Monitoring Plans, as described in Section 10, below.

The key issues noted in the assessment are summarized in the table below. Two questions on gender were included in the survey:

- Are activities of men, women, girls or boys linked to the environment potentially subjecting them to physical harm, and
- Who might be affected?

Of eleven respondents, one indicated that harm could occur “In some cases” while ten indicated that harm could occur “In most cases”.

In terms of who could be most at risk of harm, the nine respondents indicated the following:

- Women: 11
- Girls: 11
- Boys: 9
- Men: 9

Links to the report can be found in Annex 23.5

DRC Online REA Issues Ranking		
Issue	Response	Rank (12 is maximum)
Expectations of the affected populations in terms of external assistance?	High the affected population expect most of their needs to be met from external assistance.	10
Availability of natural resources to meet basic needs without damaging the environment	Poor: damage is occurring to the natural environment.	10
Ability of the affected population to safely manage waste	Poor: waste is poorly managed and causes negative environmental impacts.	10
Hazard	High winds	10
Basic need for health care	Lesser part of needs being met	10
Basic need for domestic resources	Lesser part of needs being met	10
Overall need for humanitarian assistance	Lesser part of needs being met	9
Concentration of the affected population	High: households are living within 2 meters or less of each other.	9
Self-sufficiency	Low: heavily reliant on the natural environment, humanitarian assistance and other sources.	8
Current livelihood options	There are few to no options: households have limited or no means to meet needs and are heavily reliant	8

	on assistance and accessing natural resources.	
Hazard	Fire in camps	8
Hazard	Wildfire outside camps	8
Basic needs for livelihoods	Lesser part of needs being met	8
Accessibility to humanitarian assistance	Medium – Not easy but not difficult	7
Basic need for water	Lesser part of needs being met	7
Basic need for shelter	Lesser part of needs being met	7
Basic need for transport	Not being met at all	7
Distanced affected have moved	They are close to their point of origin, that is they are at or less than 6 hours travel by car from their point of origin.	6
Distanced affected have moved	They are far from their point of origin: more than one day travel by car from their point of origin.	6
Social solidarity	Not strong or weak: there are connections, but they are not strong or well established.	6
Hazard	Floods	6
Hazard	Landslides and similar events	6
Hazard	Disease affecting people	6
Hazard	Disease affecting animals	6
Basic need for food	Not being met at all	6
basic need for food	Lesser part of needs being met	6
Basic need for personal safety	Not being met at all	6
Basic need for energy	Lesser part of needs being met	6
Hazard	Earthquakes	5
Hazard	Pest affecting crops	5
Hazard	Pollution from industrial sources	4
Hazard	Sand and dust storms	4
Hazard	Other	2

9.2. NEAT+ Assessment

The DRC Shelter and NFI Cluster has been working on a NEAT+ assessment for eastern DRC. The final report of the assessment had not been completed at the time of initial development of the Profile. Initial results, available from the DRC Shelter Cluster, were used for the Combined Assessment Results (Section 9.4), below.

9.3. Suggested Further Action

The results of the household survey conducted at the same time as the NEAT+ assessment should be analyzed and incorporated into the profile. Further, these results should be used to update the combined assessment results (Section 9.4) and, if necessary, used to update the environment management and monitoring plans.

9.4. Combined Assessment Results

Annex 23.5 describes the process used in the analysis of the REA and initial NEAT+ results. The table below lists issues defined as:

1. **Critical to success** of shelter and settlement assistance, indicated by a 3.
2. **Not critical but important** to consider in shelter and settlement assistance, indicated by a 4, 5, or 6, and
3. **Not core** to successful shelter and settlements assistance, indicated by a number above 6.

Note that *not core* issues may, in fact, be addressed in shelter and settlements operations, but they will not be addressed before the *critical* and **important to consider** issues.

The results are used as a starting point for the environmental management and monitoring plan described in Section 10, below.

Environmental Issues Ranking Table The lower the number, the more significant (higher ranking) the issue.	
Issues	Consolidated Ranking
Weak solid waste management	3
Poor availability of natural resources to meet basic needs without damaging the environment	5
High concentration of affected populations	3
Deforestation	5
Few livelihoods	7
Low self-sufficiency	6
High expectations of the affected populations in terms of external assistance	6
High overall need for humanitarian assistance	6
Soil erosion due to site development and shelter construction.	3
Risks posed by climate-related hazards: floods, severe erosion, landslides, severe weather.	3
High winds	4
Floods	4
Landslides	4
Wildfire	4
Earthquakes	5
Human disease	6
Animal disease	9
Industrial pollution	6
Pest affecting crops	7
Indoor air pollution: Design should consider local energy use practices and provide a kitchen space with adequate ventilation to minimize exposure to air pollution.	3
Need for water	4
Poor food security	8
Fire in camps	3
Limited access to energy	5
Need for transport	6
Basic health care	9
Basic need for domestic resources	9
Difficult accessibility for humanitarian assistance	5
Wastewater management: no adequate management infrastructure, environmental degradation and risk of vector transmission	4

10. Environmental Management and Monitoring Plans⁹

10.1. Environment Management Plan

A report describing the development of a programmatic **Environmental Impact Management Plan** (EIMP) for humanitarian assistance to internally displaced populations can be found in Annex 23.6.

The REA and initial NEAT+ combined assessment identified the three issues as important:

1. High overall need for humanitarian assistance.
2. Difficult accessibility of IDPs for humanitarian assistance.
3. Basic IPD needs not met.

Addressing these issues is linked directly to the scale and effectiveness of humanitarian operations and should be resolved as operations expand in scope and impact.

Specific environmental management actions are required for the following interventions:

- **NFI assistance**
 - o Minimize packaging where possible.
 - o Establish a process for collecting and reusing, recycling or repurposing packaging waste.
- **“Cash” assistance**, for general or specific uses
 - o Conduct an [Emergency Market Mapping Assessment](#) (EMMA) to understand and address market price and supply-and-demand impacts and impact on natural resources supplies and qualities from increases supplies of disposable income.
- **Shelter and other building construction and site development:**
 - o Conduct a [Shelter Methodology for the Assessment of Carbon](#) (SMAC) based assessment on bills of quantity and consider alternatives to reduce the carbon footprint of construction materials and methods.
 - o Conduct an [EMMA](#) to understand and address market price and supply-and-demand impacts and impacts of sourcing construction materials locally, from suppliers or directly from natural resources. This assessment should include soils, water, sand, rocks, wood, grass and any other natural material used in construction.
 - o Develop and implement a plan to address any transitory negative impacts on the environment, e.g., borrow pits, access roads, supplies storage yards, disposal of waste and debris, etc.
 - o A site-specific environmental management plan should be developed for site development work. See [Green Recovery and Reconstruction Training Toolkit](#) Module 4 - Site Selection and Development for guidance on plan development.
 - o Minimize the reduce the removal of trees and other vegetation during construction and replace two-for-one trees which has been removed.
 - o Use the following [Green Recovery and Reconstruction Training Toolkit](#), Modules as guidance for specific activities:

▪ 4 - Site Selection and Development	▪ 6 – Construction
▪ 5 - Materials and Supply Chain	▪ 7 - Water and Sanitation and
	▪ 8 – Livelihoods.

Note that several of these actions require cross-cluster collaboration.

⁹ There are separate plans to manage impacts and monitor these activities.

Environment Impact Management Plan – DRC IDP Response		
Issue	Action	Additional Information
Core Issues for Shelter and Settlements Interventions		
Weak solid waste management	Incorporate a waste management system into the project.	https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjohcz1u-P9AhVw7LsIHbNRBAAQFnoECAAsQAQ&url=https%3A%2F%2Femergency.unhcr.org%2Fentry%2F33196%2Fwaste-management-standards&usg=AOvVaw0XgzNLa6VrNgvX8aDGvjz- https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjohcz1u-P9AhVw7LsIHbNRBAAQFnoECA0QAQ&url=https%3A%2F%2Fpolicy-practice.oxfam.org%2Fresources%2Fdomestic-and-refugee-camp-waste-management-collection-and-disposal-126686%2F&usg=AOvVaw3N0MfZPIWdjzeCEuEwqblW
High concentration of affected populations	Develop and implement plans to congest sites.	Site decongesting can take place as part of site upgrading and occupation reviews (e.g., periodically checking to see if shelters are actually occupied).
Soil erosion due to site development and shelter construction.	Incorporate soil erosion management activities into establishment and operation of sites	Consider the use of nature-based methods and labor intensive works as part of site upgrading plans.
Risks posed by climate-related hazards: floods, severe erosion, landslides, severe weather, high winds, floods, landslides, wildfire.	Develop preparedness, warning, response and risk reduction plan for climate-related hazards.	• Link flood warnings to weather forecasts. See Flood Green Guide for more information. Warning system can be locally developed and managed. • Assess landslide risk using local experts and/or remote sensing. • Include an extensive education element, for children as well as adults, as part of plans.
Indoor air pollution: Design should consider local energy use practices and provide a kitchen space with adequate ventilation to minimize exposure to air pollution.	Incorporate measures, e.g., smokeless stove, education on fuel selection, chimney, ventilation, to reduce smoke from cooking.	Consult these sites for guidance in addition to experts on DRC: • Global Plan of Action for Sustainable Energy: https://unitar.org/sustainable-development-goals/peace/our-portfolio/global-platform-action-gpa-sustainable-energy-displacement-settings • https://energies2050.org/ethicarbon/improved-cook-stoves-democratic-republic-of-the-congo-drc/?lang=en • https://www.wfp.org/publications/safe-initiative and https://docs.wfp.org/api/documents/WFP-0000050327/download/?_ga=2.233211735.874204642.1679250223-718457720.1679250215.

Fire in camps	Implement a safe fire management plan under the project.	- Consult the NGO Kindling for guidance. - Decongest camp sites over time to reduce risk of fire spreading.
Need for water	Assess water demands and supply options and design components which always permitting minimum standards. Consider alternate water supplies.	To be coordinated with WASH.
Wastewater management: no adequate management infrastructure, environmental degradation and risk of vector transmission	Incorporate waste water management system in project design and implementation.	To be coordinated with WASH.
Poor availability of natural resources to meet basic needs without damaging the environment and deforestation and basic need for domestic resources	Assess natural resource demands based on camp design, size and household needs and develop an extraction management plan for surround resource source area.	The plan should include issues like fuel wood use based of stoves provided and water requirements and seasonal supply. Information on the amount of wood, sand, clay, grass or other local natural resources needed for construction, etc. can be identified in bills of quantity.
Earthquakes	Assess earthquake risks to structures and systems (e.g., water supplies) and implement risk reduction as part of project design or site upgrading.	
Limited access to energy	Assess energy needs for cooking, heating, lighting and security and develop a plan to address gaps.	- Solar powered lamps, for use at the household level and for site security (e.g., near latrines) can be effective low-maintenance, options. See the following for more information : https://www.unhcr.org/5b3cb5bb7.pdf https://unfoundation.org/blog/post/5-ways-solar-lighting-can-improve-lives-of-girls-and-women/ https://unitar.org/sustainable-development-goals/peace/our-portfolio/global-platform-action-gpa-sustainable-energy-displacement-settings. - See https://static1.squarespace.com/static/5bc4882465019f632b2f8653/t/606ec4143f9cdf685ba3b6c6/1617872087113/RE+STUDY+-+Lusenda+refugee+camp+%28FV%29.pdf for an energy assessment report.
Low self-sufficiency, few livelihoods	Develop livelihoods support activities, including cash or food for work or other forms of compensation, linked directly	Note that many construction, site development and WASH components of a shelter and settlements project can include high levels of work from the IDPs

	to project tasks to grow assets available to IDPs.	receiving assistance. These opportunities should be maximized, to build assets and strengthen ownership of the resulting facilities.
Need for transport by IDPs	Incorporate road improvements in site development plans.	Note that road improvements should be focused on existing roads or access and not include opening new locations to road access.
Human disease and Limited basic health care	To be address in consultation with the Health and WASH Clusters.	May be considered a critical issue by the Health sector.
Industrial pollution	This issue needs to be reviewed on a site-by-site basis.	
Not Immediately Core to Shelter and Settlements Operations		
Basic need for domestic resources	This issue was not rated as critical at the programmatic level but needs to be assessed directly for each internally displacement.	The Shelter Cluster normally provides a standard package of NFIs to internally displaced persons. A separate environment-focused review of the contents of this package is suggested.
Poor food security	Coordinate with WFP and FAO on measures to improve food security.	Linked to possible “cash” and livelihoods support activities in shelter and settlements interventions.
Animal disease	Coordinate with FAO.	
Pest affecting crops	Coordinate with FAO.	

10.2. Plan Monitoring

Plan monitoring should be incorporated into the ongoing Cluster and project-level monitoring systems.

10.3. Suggested Further Action

- The EIMP should be shared with Cluster partners and other stakeholders (e.g., WASH, Food Security, Health) and partners encouraged to integrate the results into their assistance programs.
- The issues identified in the EIMP should be integrated into the Shelter Cluster strategy and HNO/HRO process.
- The Cluster should review the EIMP on a quarterly basis.

11. Humanitarian Programming

11.1. Humanitarian Programming Cycle

DRC goes through the annual Humanitarian Programming Cycle (see image below). The 2022 DRC HRP can be found at this link:

https://www.humanitarianresponse.info/sites/www.humanitarianresponse.info/files/documents/files/hrp_2022- janvier-v2-finale-web.pdf.

The Global Shelter Cluster has developed the [Shelter Cluster Tip Sheet for HRP Environment and Climate Change Mainstreaming](#) for use in integrating environmental considerations into the shelter component of the Humanitarian Response Plan (HRP). This process also includes consideration of environmental issues in the Humanitarian Needs Overview (HNO), on which the HRP is based. Materials and suggested actions provided in this **Profile** can be used as input into the HNO and shelter section of the HRP.



11.2. Suggested Further Actions

The Shelter Cluster should work with OCHA and other clusters to integrate environment-focused indicators into the Humanitarian Programming Cycle. This process should be driven by an analysis of environmental risks associated with the humanitarian response and include results from the DRC Shelter Cluster Environment Management *Plan* (see Section 10).

12. Remote Sensing and GIS Data and Analysis to Enhance Humanitarian Shelter Programming

12.1. Current Use

There is no systematic use of remote sensing and GIS data in planning or monitoring humanitarian shelter or settlements, population displacements or possible or actual environmental impacts.

12.2. Suggested Further Action

The DRC Shelter Cluster should work with OCHA, the CCCM Cluster, REACH and other partners to develop a robust IDP-focused remote sensing and GIS system which will:

1. Aid in planning camps.
2. Assess the environmental impact of camps, initially using analysis of site density (population x area) and norms for area per person and expanding as capacity develops to assess demand on natural resources (e.g., water, forest products, etc.),

growth, adequacy of basic services (e.g., water points, clinics, toilets, etc.), erosion and downstream environmental impacts.

3. Define boundary zones around protected areas where camps should not be placed.
4. Define optimal and acceptable camp locations, based on camp standards,
 - a. In areas where displacements can be expected, e.g., North Kivu, and
 - b. On a near-real-time basis for unanticipated displacements.

13. Housing, Land and Property Security and Environment

There is a Housing, Land and Property (HLP) Working Group as part of the Protection Cluster in DR Congo, under the lead of Norwegian Refugee Council (NRC). The Working Group is the first point-of-contact for any HLP issues, particularly the installation or relocation of displaced populations. The two levels of engagement, at the legal/regulatory and practical/technical level, need to be considered, as summarized below:

13.1. Legal Level or Regulatory Texts

Land tenure constitutes "the set of relations between individuals and the land and the renewable natural resources it contains". All environmental regulations (forests, protected areas, species, hunting, fishing) are based on the legal system of land tenure, according to which the relationship to space conditions that of the elements it contains.

The reflection on a land tenure system for the management of natural resources and the conservation of ecosystems implies rethinking the relationship between man and his environment. It is necessary to invent a legal construction that responds to environmental challenges.

The prevalence of conflicts related to land ownership is increasingly linked to the increasingly disturbing levels of displacement that characterize the general situation in the eastern regions of DR-Congo. With a displaced population of more than 5 million people, access to natural resources is an important issue. The presence of displaced persons increasingly requires the availability of land for grazing, housing, or any other use, in a context of structural vulnerabilities. The actors in the HLP will need to take all these issues into account in their programming. Consider a community-based approach to involve all stakeholders (both host and displaced populations) in the respect of local land norms, including environmental considerations.

In particular, landowners will need to develop the following concepts for environmental inclusion:

1. A right of way corresponds to traffic and parking; it is the use of a space as an access road (e.g., right of way) with possible temporary stops (e.g., right of accommodation).
2. A right to take a spontaneous natural resource or harvest residues: this is the right to take from the environment (gathering, grazing, forest grazing, hunting, and fishing (viaticum), affouage, lopping, gleaning, etc.).
3. A right of exploitation corresponding to the use of the resource, the purpose of which is to profit from it through agricultural, forestry, pastoral, fishing, or hunting production. It gives rise to a short- or medium-term management of the resource.
4. A right of exclusion allowing the control of space that leads to the exclusion and allocation of access to the resource. It therefore results in the management of its regeneration over the long term.
5. A right of intentional management that integrates both environmental protection and food security objectives.

13.2. Practical or Technical Level

HLP is not only about laws – although laws are important – but it involves practices, customs, and attitudes that revolve around specific rights to land and property. HLP is therefore not only

critical for lawyers and specialists, but also for humanitarian professionals who need to learn, act, and adapt their programs to address concerns and provide solutions for housing, land, and property issues.

For more information on HLP activities in DR Congo, see the [website of HLP Working Group](#) or contact Mr. Patrick Chikala, the National Coordinator: pascal.chikala@nrc.no and Mr. Steve Ndikumwenayo, the National Protection Cluster Coordinator: ndikumwe@unhcr.org.

14. Site Selection and Planning

14.1. Site Selection Process

Site selection is done by provincial government officials. Currently, the criteria for site selection are not clearly based on humanitarian standards, while the level of participation of humanitarian actors in site selection is not formally established. The humanitarian community does not currently identify possible camp sites for the Government to consider and has limited options for not using sites selected by the Government.

14.2. Site Planning Process

Site planning is done by Shelter and CCCM staff assigned to a specific response. Site planning uses the Le Toolkit de Gestion de Camp (https://cccmcluster.org/sites/default/files/2018-10/CMT_FR_00_18_Digital_0.pdf, English: https://www.iom.int/sites/g/files/tmzbd1486/files/our_work/Shelter/documents/Camp-Management-Toolkit_2015_Portfolio_compressed.pdf0).

Currently, remote sensing and other GIS-based planning tools are not used for site planning. It is unclear if an environment impact management plan is developed as part of the overall site management plan. As a result, it is possible that the analysis of environmental impacts of a camp on a site and management methods are not fully documented and management measures not formally incorporated into camp management and funding proposals.

14.3. Suggested Further Action

- A mapping of possible camp sites, based on humanitarian standards and the Camp Management Toolkit guidance, should be developed for areas most frequently affected by displacement, and shared with the Government.
- Incorporate remote sensing and GIS tools into site planning and to monitor the impact of a site on the internal and external environment.
- Expand training on the use of remote sensing tools and site selection and environmental management to include local Government authorities.
- Site planning should include structural measures to reduce the risks from flash flooding, including changing the rectangular camp layout to match the form of the land, creation of retention basins with plantings, hardened barriers to direct flood waters away from shelters and other buildings (including latrines) and warning signs for flood water passages.
- Fire management should be part of site management plans and guidance on safely managing fire risks in camps should be developed and applied progressively across sites. Additional information can be provided by the NGO Kindling (see <https://www.kindlingsafety.org/>).

15. Site Decommissioning¹⁰

15.1. Site Decommissioning Overview

The DR Congo Shelter Cluster is not currently involved in IDP sites management. A CCCM cluster was activated in 2022 under the co-leadership of UNHCR and IOM.

¹⁰ Although site decommissioning comes once a site is no longer used, it should be part of the site selection and planning process.

At the same time, Shelter Sphere Shelter Standard includes indicators on (1) % of temporary settlement sites restored to a better condition than before use, and (2) % solid waste on the site repurposed, reused, or recycled - target: 70% of volume. Achieving these indicators would be expected to be part of a shelter-focused, donor-financed, humanitarian response.

Recent decommissioning effort involved the Kalunga IDP camp in Tanganyika Province. The site hosted about 2,000 IDP families. In January 2023 the provincial government decided to close this site. IOM worked with the government to support the cleaning of this site through a USAID-funded ***Direct lifesaving and protection assistance for conflict-affected populations in Eastern Democratic Republic of the Congo*** project.

The project involved:

- Disinfecting and sealing 50 latrine blocks.
- Disinfecting 19 latrine blocks, for future use by the host community.
- Demolish 28 showers.
- Cleaning and filling garbage pits.
- General waste collection.

After site closure, environmental sanitation is important to protect the environment and the people living in the vicinity from the risk of diseases.

15.2. Additional Guidance

Additional information useful in planning and executing site decommissioning can be found in the following documents:

- **VEHA - Field Implementation Guidance: Decommissioning of Sites and Handover**, <https://ehaconnect.org/guidance/decommissioning-of-sites-and-handover>.
- **Environmental Perspectives of Camp Phase-Out and Closure: A Compendium of Lessons Learned from Africa**, <https://www.unhcr.org/afr/4a967ce69.pdf>.

15.3. Suggested Further Action

Humanitarian partners should develop DRC-specific guidelines on site decommissioning, drawing on available guidelines and involving government authorities in the process. Some partners have or are implementing site decommissioning activities (as indicated above). These experiences should be used to develop a clear strategy on site decommissioning for use by all humanitarian programming stakeholders.

16. Shelter Construction

16.1. Shelter Cluster Assistance

IDP shelter assistance provided by the Shelter Cluster currently is based on four designs shown below. Bills of Quantities can be found in Annex 23.7.

All four designs incorporate unmilled (poles) or milled (boards) wood, and are likely supplied from local forest resources. Plastic sheet is normally able to provide sufficient protection for 24 months and would need to be replaced to assure shelters meet minimum standards. The use of zinc roofing will extend a shelter's usable life, but may raise cost issues.

Emergency Shelter – Plastic Sheet, 4x3x3m



Stick Frame/Wattle-and-Dab Wall Shelter - Zinc Roof, 4.5x3.5m



Wood Walls – Zinc Roof, 4.5x7m or Wood Walls – Zinc Roof, 4.5x5m



16.2. Environmental Impact

Global Shelter Cluster partners are currently working on methods to assess the environmental impact of shelters using a score card approach. This approach is described in Chapter 9, [Roadmap for Research](#). Once the scorecard methods in development have been released, the DRC Shelter and NFI Cluster can conduct an assessment of shelter construction and consider changes to materials or methods to reduce environmental impacts.

16.3. Suggested Further Actions

- When guidance is available, a score card assessment of current shelter designs should be completed, and steps taken based on the assessment to reduce environmental impacts.
- The Shelter Cluster should develop repair kits and medium term “durable” shelter designs for shelters which may be exceeding functional life. This is specifically the case for shelter sites which have been in existence for more than 12 months and are expected to remain in existence for at least an additional 12 months. (Emergency shelters built using standard plastic tarps can be expected to degrade to below minimum shelter standards by 24 months.)
- The impact of using forest products for shelter construction on local natural resources and land use customs should be examined.

16.4. References for Future Shelter Construction

Useful references for conflict recover planning for shelter include:

- **Building Material Selection and Use: An Environmental Guide (BMEG)** (<https://envirodm.org/green-recovery/#bmeg>).
- Green Recovery and Reconstruction Training Toolkit (https://envirodm.org/green-recovery/grrt-training-modules/#gf_3), including:
 - Module 2: Project Design, Monitoring and Evaluation,
 - Module 4: Strategic Site Selection and Development,
 - Module 5: Materials and the Supply Chain,
 - Module 6: Construction,
 - Module 7: Water and Sanitation,
 - Module 8: Livelihoods, and
 - Module 9: Disaster Risk Reduction(All available at the link above).
- **Sector Environmental Guideline Construction** (<https://www.usaidgems.org/Sectors/construction.htm>).
- **Sector Environmental Guidelines: Housing Reconstruction** ([https://www.usaidgems.org/Documents/SectorGuidelines/Housing%20Guideline%20Final w GCC Addition May11.pdf](https://www.usaidgems.org/Documents/SectorGuidelines/Housing%20Guideline%20Final%20w%20GCC%20Addition%20May11.pdf)).
- **Environmental Guidelines for Small-Scale Activities in Africa** (https://pdf.usaid.gov/pdf_docs/PNADK154.pdf).
- **Ressources complémentaires Document d'accompagnement du Manuel en environnement pour les initiatives de développement Communautaire** (https://www.international.gc.ca/world-monde/assets/pdfs/funding-financement/additional_resources-ressources_complementaires-fr.pdf).

Also see <https://www.usaidgems.org/sectorGuidelines.htm> for guidance on other sectors and environmental impacts.

17. Logistics and Procurement

17.1. Overview of Challenges

DRC's logistics infrastructure poses great challenges in designing and implementing effective and efficient humanitarian responses. The most vulnerable communities live in very remote areas, which are often either completely isolated or have very limited connection to the rest of

the country. Current humanitarian operations are in eastern DRC, with humanitarian supplies coming over a road distance of at least 1,500 km from the east coast of Africa.

The lack of road networks across the country make the humanitarian response complicated and entail high operating costs. Partners are often obliged to use aircraft to deploy humanitarian assistance to and within the country despite numerous challenges in terms of aircraft availability and cost.

Distances and accessibility also affect the movement of humanitarian personnel and limit capacities for on-the-ground assessment, consultations and monitoring. These constraints can affect the timely provision of assistance.

Most shelter and NFI assistance is imported due to a need to meet acceptable quality and specifications. See Annex 23.8 for an assessment of imported versus locally procured humanitarian supplies.

17.2. Suggested Further Actions

- Consider establishing stockpiles of basic shelter and NFI assistance in locations near likely needs for rapid deployment. Given recent demands on the Shelter Cluster for assistance outside the east, one stockpile should be positioned in or near Kinshasa.
- Work with potential shelter and NFI manufactures in East Africa to raise standards to levels which meet humanitarian standards and permit procurement within this region. This would likely reduce the environmental footprint of assistance and shorten delivery times. This effort would best be done in cooperation with humanitarian shelter and NFI assistance providers working in East Africa, including UNHCR, IFRC, ICRC and others. This effort should be coordinated with the NFI scorecard work, as per Section 18.2, below.

18. Non-Food Items

18.1. NFI Overview

In DRC, UNICEF coordinates a working group on Non-Food Items (NFI). The strategic objective of the Working Group is to provide immediate access to essential household items, including personal hygiene kits, to people affected by displacement to enable them to cover their vital needs that preserve their physical and mental integrity, reduce their vulnerability, and improve their living conditions.

The NFI Working Group has established standard non-food item (NFI) or basic household items. The kits are divided into kitchen kits, wash kits and intimate hygiene kits. See Annex 23.9 for kit content.

Here are key principles of an NFI response are:

- Flexibility of funding:
 - Geographic (at least province-wide)
 - Modalities (in-kind, vouchers, cash)
- Two types of response
 - Emergency (lifesaving): through the Rapid Response Mechanism
 - Transition (living conditions) for the long-term displaced
 - Systematic distribution of the Menstrual Hygiene kit along with the NFI kit
 - Distribution of KHM only in kind.

18.2. Score Card Assessments

The Global Shelter Cluster is developing a scorecard approach to assessing the environmental impact of non-food items. Once the process has been field tested, the DRC Shelter and NFI Cluster can conduct assessments of the current NFI items and identify how environmental impacts can be reduced.

18.3. Suggested Further Action

Conduct environmental scorecard assessments of NFI items when a methodology has been released by the Global Shelter Cluster.

19. Cash Assistance

19.1. DRC Cash Working Group

A Cash Working Group (CWG) supports providing “cash” assistance to affected populations to meet humanitarian needs. Environmental issues are not currently integrated into decision making on whether to use cash or not.

19.2. Suggested Further Actions

- The Cash Working Group should integrate environment-related issues and analysis into the decision-making process on whether to use cash or provide physical assistance.
- The Cash Working Group and the Shelter Cluster should develop specific guidance for shelter and NFI items.

See Annex 22.10 for further information on the guidance which can be considered.

20. Key Considerations for Energy and Fuel

20.1. Overview

The DRC’s potential to generate energy is high, having a wide range of both renewable and non-renewable energy sources, including hydropower, biomass, solar, wind and geothermal, as well as non-renewables oil, natural gas & uranium. About 80% of DRC’s total population did not have access to electricity, while 94% of the population were completely dependent on biomass as the main cooking fuel.

Historically, shelter and NFI assistance package did not focus on energy and fuel. Currently, the DR Congo Shelter Cluster has begun to integrate environmental considerations in its strategy to reduce negative impacts on natural resources, where use of biomass for cooking is a significant issue. Initiatives include creation of a working group on environmental issues and conducting environmental assessment using [NEAT+](#).

20.2. Suggested Further Actions

- Assess whether fuel efficient stoves can be integrated into the NFI assistance package.
- Assess the impact of biomass for fuel use on shelter sites, for instance, local level use of the [NEAT+](#) tool, or fuel wood source and use studies.

21. Debris and Waste Management

21.1. Current Practice

The DRC Shelter and NFI Cluster is not generally involved in debris and waste management.

21.2. Additional Guidance

Additional guidance on waste management is available from these sources:

- **Waste management in camp settings** can be found here: <https://resources.eecentre.org/resources/disaster-waste-management-guidelines-dwmg-online/different-types-of-waste/waste-in-displacement-camps/>.
- **Domestic waste** can be found here: <https://resources.eecentre.org/resources/disaster-waste-management-guidelines-dwmg-online/different-types-of-waste/ordinary-domestic-waste/>.
- **Hazardous waste management** can be found here: <https://resources.eecentre.org/resources/disaster-waste-management-guidelines-dwmg-online/different-types-of-waste/hazardous-waste/>.

- **Medical/Biohazard waste** can be found here:
<https://resources.eecentre.org/resources/disaster-waste-management-guidelines-dwmg-online/different-types-of-waste/healthcare-waste/>.

21.3. Suggested Further Action

Consider, with the CCCM and WASH Clusters, options for expanding waste and debris management in shelter sites, as environmental and livelihoods support activities.

22. Disaster Risk Reduction and Nature-based Solutions

22.1. Overview

The DRC Shelter and NFI Cluster has not been directly involved in disaster risk reduction and nature-based solutions as part of humanitarian operations. At the same time, eco-DRR has been demonstrated in DRC, including in a [project to reduce flooding and reduce local vulnerability](#).

Further, organizations like the Red Cross typically include DRR, often with a strong nature or ecosystem element, into humanitarian operations under the concept of reducing the risks which may have contributed to a disaster in the first place. For instance, the [International Federation of Red Cross and Red Crescent Societies Democratic Republic of Congo Plan 2020 Country Profile](#) includes a pre-disaster DRR approach

22.2. Suggested Further Action

Engaging in DRR and nature-based solutions to hazards in DRC may not immediately look to be part of immediate humanitarian response. However, the DRC Shelter Cluster should explore how to integrate DRR and nature-based solutions into these immediate responses in line with the concept that humanitarian assistance should play a role in avoiding future disasters. To this end, it is suggested that a DRR and nature-based solutions working group be established within the Cluster to explore practical options in more detail.

23. Annexes

23.1. List of Environmental Organizations

Name of the CSO/CBO granted by WWF	Type of organisation by the organisation's own definition	Registered Yes/No, national or local level, what ministry or agency	Areas of intervention (geography; country, region, landscape and thematic)	Main objective(s) of the grant	*** CSO Capacity Assessment done: No, or Yes (201X)	****Has the CSO/CBO been covered in the Level of Engagement assessment: No, or Yes (201X). If so, specify the intervention/project	***** Collaboration and/or partnership with WWF started year XXXX
Association pour le Développement de Kitaba-Mwenga (ADKI)	Network	Yes - provincial level	DRC, South Kivu, Itombwe Natural Reserve	Natural Resource Management and Biodiversity Conservation	Yes - 2016 & 2018	Yes -	2015
Action Féminine pour l'Alimentation (AFAL)	Women CBO	Yes - provincial level	DRC, South Kivu, Itombwe Natural Reserve	Biodiversity Conservation and Tree planting	Yes - 2015 & 2018	Yes -	2015
Association pour la Gestion Durable de la Biodiversité d' Itombwe (AGDBI)	CSO	Yes - national level	DRC, South Kivu, Itombwe Natural Reserve	Natural Resource Management (advocacy, community forest, community right, forest benefit sharing)	Yes - 2016 & 2018	Yes -	2015
Association des Peuples Autochtones Batwa (APAB)	Indigenous CBO	Yes - provincial level	DRC, South Kivu, Itombwe Natural Reserve	Indigenous people right and livelihood	Yes - 2018	Yes -	2018
CAFEPADÉ	CSO	Yes - provincial level	DRC, South Kivu, Itombwe Natural Reserve	Promotion of livelihood activities	Yes - 2015 & 2016	Yes -	2015
Consortium Braves Femmes du Congo (CBFC)	Consortium	Yes - national level	DRC, South Kivu, Itombwe Natural Reserve	Natural Resource Management and Biodiversity Conservation; socio economic support, indigenous right	Yes - 2015 & 2018	Yes -	2015
CEFDHAC	CSO	Yes - national level	DRC	Natural Resource Management advocacy	Yes - 2018	No	

CPSCFV-NK	CSO for the Environmental thematic	Yes - national level	DRC, North Kivu, Advocacy & lobbying, Natural Resource Management	Improving regulatory work and regional advocacy on Natural Resource Management	Yes - 2018	Yes - 2018	
Jeunes Méthodistes (JM)	CSO	Yes - national level	DRC, South Kivu, Itombwe Natural Reserve	Natural Resource Management and Biodiversity Conservation	Yes - 2018	Yes -	2018
PF- RDCongo	CSO	Yes - national level	DRC, South Kivu, Itombwe Natural Reserve	Natural Resource Management and Community Right	Yes - 2016 & 2018	Yes -	2016
PIDP	Indigenous people network	Yes - provincial/national level	DRC, North & South Kivu, Advocacy and lobbying, Biodiversity protection, Natural Resource Management, Landtenure security	Indigenous people right and Livelihood	Yes - 2018	Yes - 2018	
Reseau des Populations autochtones et Locales pour la gestion des écosystèmes forestiers en RDC (REPAAEF)	Indigenous people platform	Yes - national level	DRC	National Indigenous meeting preparation	Yes - 2018	No	
Réseau JIKO Bora	Women network	Yes - provincial level	DRC, North Kivu/Beni, Environment management	Business model development	Yes - 2018	Yes - 2018	
SOCEARUCO	CSO	Yes - national level	DRC, South Kivu, Itombwe Natural Reserve and other Protected Areas, Management of Natural Resource and Livelihood	Regional advocacy on Natural Resource Management	Yes - 2018	Yes -	2018

Travail en Réseau avec les Fédérations des Femmes et Enfants en Détresses (TRAFFED)	Women network	Yes - national level	DRC, South Kivu, Itombwe Natural Reserve	Livelihood activities support	Yes - 2016 & 2018	Yes -	2015
Union des associations de conservation de gorilles pour le Développement communautaire à l'Est de la RDC (UGADEC)	Coalition	Yes - provincial/national level	DRC, North Kivu/Walikale, Management and decision-making on Natural Resource, Forest conservation as a basis for Sustainable Development for the good of a being	Community Forest advocacy	Yes - 2014, 2016 & 2018	Yes - 2018	2017

*** Name the tool used if other than WWF CSO Capacity Assessment Tool

**** The Level of Engagement Assessment is a tool within the WWF network.

***** Collaboration/partnership could be grants, MoU, a common campaigns or other collaboration

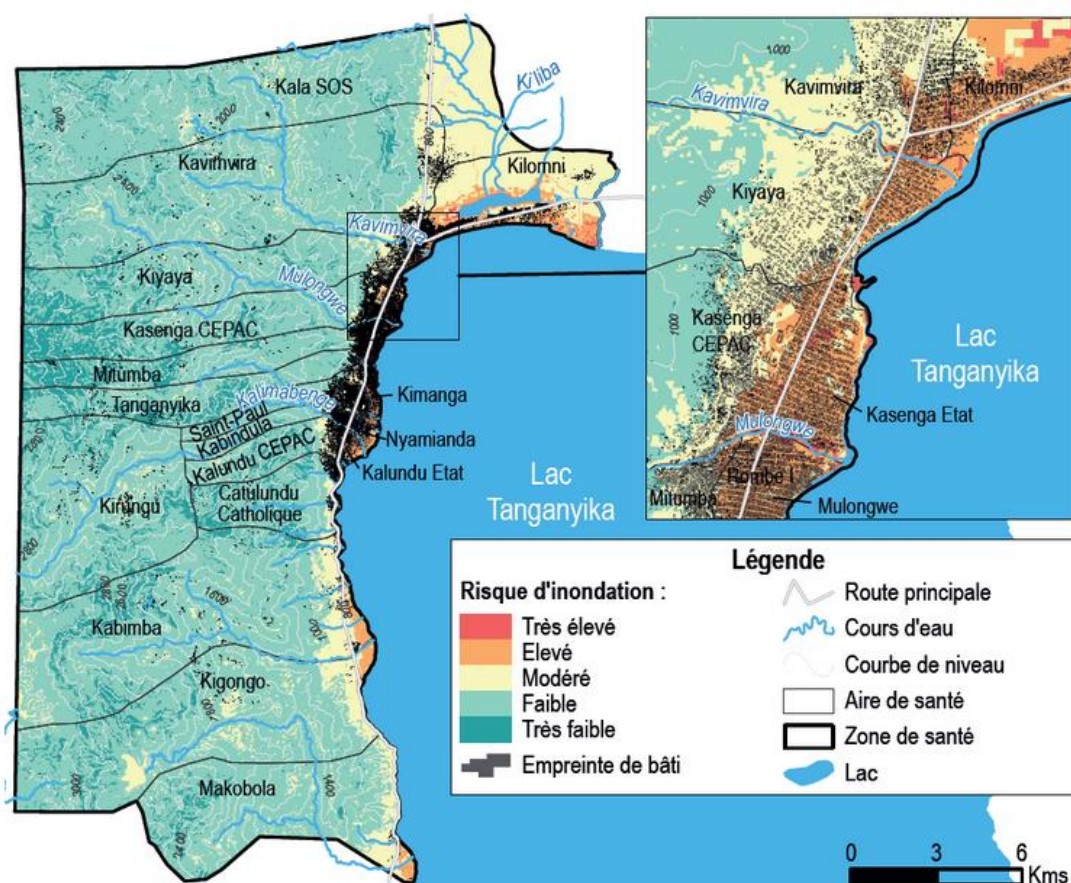
23.2. Flood Zone Mapping – Uvira, South Kivu

Information for Uvira Sanitary Zone, South Kivu

From a report prepared by REACH: https://r.dissemination.impact-initiatives.org/mk/mr/57m-CpVRIO9gnxsv1w1_bPNufsMaXJiWf2vQLgt7v_-lgsx-IXTZklblhtZnzPy4uoVa2vndI91JmtY3G8Dc3OCVHwzWGfRmZwyupeTUUtq2cNyzeBUVkv_oCSPydFdKTf6ukq0Kvv5ZIK1CXqeMr1mmCsam7Q. (Google® translation from the French.)

The health zone (ZS) of Uvira in the province of South Kivu is one of the most affected by a multiplicity of natural hazards and significant environmental degradation of human origin. In April 2020, the ZS suffered unprecedented flooding, affecting more than 150,000 people, displacing more than 100,000 and destroying around 5,000 homes. To inform the humanitarian community about the vulnerability of the population of this ZS to natural hazards, REACH conducted an environmental assessment from January 25 to February 1, 2023, which makes it possible to describe:

- Population movements linked to these hazards
- The population's perception of these hazards
- A mapping of infrastructures facing the risks of flooding
- The rate of deforestation of the ZS between 2000 and 2020



23.3. Disaster History

Year	Disaster Type	Disaster Subtype	Additional Info	Specific Location in DRC	Total Deaths
1978	Drought	Drought		Bas Zaire	500,000
1983	Drought	Drought		Haut Zaire, Kivu province	300,000
1983	Drought	Drought		Northern area	
2022	Drought	Drought			25,972,806
1966	Earthquake	Ground movement		Beni (North Kivu province)	3,600
1992	Earthquake	Ground movement		Near Kabolo (Shaba province)	311
2005	Earthquake	Ground movement		Kalemie city (Tanganyika district, Katanga province)	1,505
2008	Earthquake	Ground movement		Bukavu district (Sud-Kivu province)	17,355
2015	Earthquake	Ground movement		Kabare, Bukavu (South Kivu)	390
1976	Epidemic	Viral disease	Ebola hemorrhagic fever	Equator province	262
1978	Epidemic	Bacterial disease	Cholera	Uvira	
1987	Epidemic	Bacterial disease	Cholera	Along Zaire River	
1987	Epidemic	Bacterial disease	Cholera	Bolobo	
1991	Epidemic	Viral disease		Kivu Region	
1995	Epidemic	Viral disease	Ebola haemorrhagic fever	Kikwit	
1996	Epidemic	Bacterial disease	Cholera	Kinshasa	821
1996	Epidemic	Bacterial disease	Cholera	Sake (Goma)	1,133
1997	Epidemic	Bacterial disease	Cholera	Kapalata Camp (Haut-Zaire Province)	800
1997	Epidemic	Viral disease	Monkey pox		100
1997	Epidemic	Viral disease	Monkeypox	Katako-Kombe and Lodja (Kasai Oriental)	511
1997	Epidemic	Bacterial disease	Cholera	Pointe-Noire	485
1998	Epidemic	Bacterial disease	Cholera	BUnia (ORiental province) and BUkavu (Sud-Kivu province)	9,605
1998	Epidemic	Bacterial disease		Tembo, Kikwit, Kingwagala and Kahemba (Bandunda Region close to Angola)	114
1998	Epidemic	Bacterial disease	Cholera	South Kivu, North Kivu, Oriental province	3,962
1998	Epidemic	Bacterial disease	Cholera	Shabunda (South Kivu)	
1998	Epidemic	Bacterial disease	Meningococcal disease	Bobozo Camp (Kananga)	203
1999	Epidemic	Viral disease	Marburg virus	Durba (Watsa Zone)	72
1999	Epidemic	Bacterial disease	Cholera	Kisangani	99
2000	Epidemic	Viral disease	Marburd virus	Durba, Watsa District (Orientale Province)	1
2000	Epidemic			Aketi, Oriental Province	62

2000	Epidemic	Viral disease	Acute respiratory syndrome	Lekana District	
2001	Epidemic	Bacterial disease	Cholera	Goma	677
2001	Epidemic	Bacterial disease	Meningococcal disease	Katana, Bukavu, Idjwi (South Kivu province)	893
2001	Epidemic	Bacterial disease		Reti, Ituri province	384
2001	Epidemic	Bacterial disease	Cholera	Lubumbashi, Ankoro, Kabalo, Kongolo and Kalemie (Katanga Province)	851
2001	Epidemic	Bacterial disease	Cholera	Katanga province	6,099
2001	Epidemic	Viral disease	Acute respiratory syndrome	Bosongo, Mbisingando (Kasai Occidental province)	243
2001	Epidemic	Viral disease	Monkeypox	Susinga, Karawa (North Equateur), Baringa, Likukuma, Toenga, Dongila, Yakoma (Equateur)	459
2001	Epidemic		Acute watery diarrheal syndrome	Kalemie region	1,488
2001	Epidemic	Viral disease	Ebola	Kelle, Mbomo districts	13
2002	Epidemic	Bacterial disease	Meningococcal disease	Mai-Ndombe, Bandundu province	66
2002	Epidemic	Bacterial disease	Cholera	Malemba Nkulu, Kabala, Butombe, Songwe, Twite-Mwanza (Katanga province and Eastern Kasai province)	2,636
2002	Epidemic	Bacterial disease	Cholera	Babamka, Bakamaleka, Kambanga, Tshilunde, Tshilenge, Katende, Miabi (Mbuji-Mayi, Kasai-Oriental province)	353
2002	Epidemic	Bacterial disease	Meningococcal disease	North Kivu	57
2002	Epidemic	Viral disease		Kinshasa, Kongolo	4,000
2002	Epidemic	Viral disease	Acute respiratory syndrome	Djolu, Bili, Bosobolo, Gbadolite, Gemena, Karawa (Equateur province)	1,245
2002	Epidemic	Viral disease		Pinga, Mangina (North Kivu province), Equateur, Bandundu provinces	140
2002	Epidemic	Viral disease	Influenza	Thuapa (Equateur province), Inongo (Bandundu province)	500,000
2002	Epidemic	Viral disease	Influenza	Kinshasa	30,878
2002	Epidemic	Viral disease	Ebola	Mbomo, Kelle Ambomi, Ongonda, Ndjoukou, Campement Mvoula, Mbomo (Western Cuvette region)	15
2003	Epidemic	Bacterial disease	Cholera	Sud Kivu, Katanga, Kasai Oriental	13,072
2003	Epidemic	Bacterial disease	Cholera	Mbuji-Mayi (Kasai Oriental)	7,145
2003	Epidemic		Acute diarrheal syndrome	Lomela (Kasai Oriental)	184
2003	Epidemic	Viral disease	Ebola virus	Mbomo, Mbanza districts (Cuvette Ouest Department)	2
2004	Epidemic	Bacterial disease		Ituri	984

2004	Epidemic	Bacterial disease	Typhoid fever	Kinshasa	42,564
2004	Epidemic	Bacterial disease		Dingila, Zobia (Bas-Uele district, Oriental province)	73
2004	Epidemic	Viral disease		Basankusu (Equateur province)	
2004	Epidemic	Gastroenteritis		Kinshasa	2,599
2005	Epidemic	Bacterial disease	Cholera	Bukavu, Uvira (Lake Kivu area)	2,152
2005	Epidemic	Bacterial disease	Cholera	Kafé, Tchomia, Tché (Ituri)	1,420
2005	Epidemic	Bacterial disease	Pneumonic plague	Maniema province	1,300
2005	Epidemic	Viral disease	Ebola	Etoumbi, Mbomo, Kelle (Cuvette Ouest region)	2
2006	Epidemic	Bacterial disease	Cholera	North Katanga	770
2006	Epidemic	Bacterial disease	Cholera	Uvira, Fizzi (South Kivu)	948
2006	Epidemic	Bacterial disease		Tandembelo (Bandundu province)	16
2006	Epidemic	Bacterial disease		Ituri (Oriental province)	81
2006	Epidemic	Bacterial disease		Haut Uele district (Oriental province)	584
2006	Epidemic	Bacterial disease	Cholera	Kadutu, Bagira, Ibanda (Bukavu)	246
2006	Epidemic	Viral disease	Hepatitis E	Equateur province	341
2007	Epidemic	Bacterial disease	Meningococcal disease	Adi, Adja, Ariwara, Aru, Laybo (Orientale province)	47
2007	Epidemic	Viral disease	Ebola Hemorrhagic fever	Mkewa, Luebo, Kampungu, Lualaba (Western Kasai)	372
2008	Epidemic	Bacterial disease	Cholera	Moundi village (Loudima, Bouenza division)	103
2008	Epidemic	Bacterial disease	Cholera	Louetete, Loudima districts	527
2009	Epidemic	Bacterial disease	Cholera	South Kivu	10,070
2009	Epidemic	Bacterial disease	Cholera	North Kivu	5,639
2009	Epidemic	Viral disease	Meningitis	Kisangani	314
2009	Epidemic		Unknown	Manono district (Katanga province)	100
2010	Epidemic	Bacterial disease	Cholera	South Kivu, North Kivu, Katanga	3,984
2010	Epidemic	Viral disease	Meningitis	Katanga	358
2011	Epidemic	Bacterial disease	Cholera	Bandundu, Equateur, Kinshasa, P. Orientale, Maniema, Ituri, North Kivu, South Kivu; Katanga	22,233
2011	Epidemic	Viral disease	Measles	Katanga province	6,524
2012	Epidemic	Bacterial disease	Cholera	Logo, Angumu, Mahagi, Nyarambe (Bunia, Orientale province)	600
2012	Epidemic	Bacterial disease	Cholera	Orientale, North Kivu, South Kivu, Katanga, Equateur, Bas-Congo, Bandundu, Kinshasa	22,792

2012	Epidemic	Viral disease	Measles	Kadima, Kamubangwa, Mulimi, Kahongo, Kitule, Lukundula, Pongo (Kabalo, Katanga)	201
2012	Epidemic	Viral disease	Ebola	Haut-Uélé district (Province Orientale)	33
2012	Epidemic	Bacterial disease		Betou, Liranga, Dzondo, Bouanela, Etima, Congo Malembe, Boboukou, Mombenzele, Impfondo	57
2013	Epidemic	Bacterial disease	Cholera		1,071
2014	Epidemic	Viral disease	Ebola	HGR Boende, Lokolia, Watsi-Kengo, Boende moke, Lokula, Mondombe, Ikanamongo Village (Equateur province, Djera region).	17
2016	Epidemic	Viral disease	Yellow fever	Kongo Central, Kinshasa provinces, Ndjili, Kinshasa; Matadi, Kongo (Central province)	551
2016	Epidemic	Viral disease	Measles	Tanganyika province	2,087
2017	Epidemic	Bacterial disease	Cholera	Kinshasa	1,022
2018	Epidemic	Viral disease	Ebola	Bikoro, Iboko, Wangata (Equateur province)	10
2018	Epidemic	Viral disease	Ebola	Beni, Mabalako, Katwa, Kalunguta, Butembo, Masereka, Oicha, Kyondo, Musienene, Vuhovi, Mutwanga (North Kivu Province); South Kivu province; Mandima, Tchomia, Komanda (Ituri Province); Goma	3,470
2019	Epidemic	Bacterial disease	Cholera		27,000
2019	Epidemic	Viral disease	Measles		183,837
2019	Epidemic	Bacterial disease	Cholera	Haut-Katanga, South Kivu, Tanganyika, Haut-Lomami, North Kivu	12,000
2019	Epidemic	Viral disease	Measles	Haut Lomami, Lualaba, Thsopo, Kasai, Tanganyika	16,246
2019	Epidemic	Viral disease	Measles	North Kivu and Ituri provinces	180,000
2020	Epidemic	Viral disease	Ebola	Equateur province	
2021	Epidemic	Viral disease	Meningitis	Tshopo province	2,662
2022	Epidemic	Viral disease	Bubonic Plague	Rethy, Angumu (Ituri)	607
2022	Epidemic	Viral disease	Ebola Virus Disease	Wangata, Mbandaka, Bolenge (Equateur Province)	141
1990	Flood	Riverine flood	Heavy rain	Kinshasa	27,500
1994	Flood	Riverine flood		Bukavu	50
1994	Flood	Riverine flood		Cuvette region	16,500
1997	Flood			Kisangani Region	35,506
1998	Flood	Riverine flood	Heavy rain	Northeast Likouala region	20,000
1999	Flood	Flash flood	Brief torrential rain	Kinshasa	78,000

1999	Flood			Central and Western Cuvette Regions	42,000
2001	Flood	Riverine flood	Heavy rain	Kinshasa district (Kinshasa province)	26
2001	Flood	Riverine flood	Heavy rain	Mbandaka district (Equateur province)	13,000
2002	Flood	Riverine flood	Heavy rains	Uvira area (Sud-Kivu district, Sud-Kivu province)	2,540
2002	Flood	Riverine flood	Heavy rain	Plateaux, Cuvette, Sangha provinces	53,000
2003	Flood	Riverine flood	Heavy rains	Kisangani district (Orientale province)	600
2003	Flood	Riverine flood	Torrential rains	Lufutoto town (Mbanza-Ngungu area, Cataractes district, Bas-Congo province)	881
2005	Flood	Riverine flood	Heavy rains	Brazzaville district (Brazzaville province)	2,000
2006	Flood	Riverine flood	Torrential rains	Kisenso, Limete, Matete, Masina, Kimbanseke areas (Kinshasa district, Kinshasa province)	5,500
2006	Flood	Riverine flood	Heavy rains	Lukaya district (Bas-Congo province)	3,870
2006	Flood	Riverine flood	Heavy rains	Bumba area (Mongala district, Equateur province)	3,600
2006	Flood	Riverine flood	Heavy rains	Mipla, Mikalou, Tsiémé, Ma Mboulé, Peit-Chose, Yoro, Mfilou boroughs (Brazzaville district, Brazzaville province)	5,000
2007	Flood	Riverine flood	Heavy rain	Kinshasa district (Kinshasa province)	1,600
2007	Flood	Riverine flood	Heavy rain	Tsiémé, Mikalou, Nkombo, Mounali, Yoro, Ngamakosso, Poto-Poto, Massengo, Ma Mnoulé, Mfilou, Tagai boroughs (Brazzaville district, Brazzaville province), Pointe-Noire district (Pointe-Noire province)	25,000
2008	Flood	Riverine flood	Torrential rains	Kasai Occidental, Bandundu provinces	502
2009	Flood	Riverine flood	Heavy rains	Mbuji-Mayi, Mwene-Ditu districts (Kasai Oriental province)	5,000
2010	Flood	Riverine flood	Heavy rains	Bukama area (Haut-Lomami district, Katanga province)	67,500
2010	Flood	Riverine flood	Heavy rains	Basankusu area (Equateur district, Equateur province)	3,000
2011	Flood	Riverine flood		Sud-Kivu province	2,000
2011	Flood	Riverine flood		Bas-Congo province	6,000
2012	Flood	Riverine flood	Heavy rains	Kabalo area (Tanganyika district, Katanga province)	4,535
2012	Flood	Riverine flood		Pointe-Noire district (Pointe-Noire province)	2,025
2012	Flood	Riverine flood		Brazzaville district (Brazzaville province)	7,589
2014	Flood	Flash flood	Heavy rains	Bushushu, Kalehe towns (Kalehe area, Sud-Kivu district, Sud-Kivu province)	4,750
2015	Flood			Bukavu district (Sud-Kivu province)	
2015	Flood		Heavy rain	Debonhome, Ndanu, Kingabua, Pécheur, Salongo boroughs	10,560

				(Kinshasa district, Kinshasa province)	
2015	Flood			Tshopo, Haut-Uele districts (Orientale province)	180,000
2016	Flood	Flash flood	Heavy rains	Gemena city (Sud-Ubangi district, Equateur province)	2,635
2016	Flood	Flash flood	Torrential rains	Boma district (Bas-Congo province)	10,000
2017	Flood		Heavy rains	Bihambwe, Matanda	500
2018	Flood		Thunderstorm	Galiema, Bandalungwa, Selembao, Masina, Limete, Kalamu, Bumbu, Kimbaseke Ndjili communes (Kinshasa)	15,760
2019	Flood	Riverine flood		Nord - Ubangi, Sud -Ubangi, Mongala, Bas -Uele, Haut-Uele, Maniema, Sud-Kivu, Kasai, Kinshasa and Tshopo, creating a humanitarian disaster. Nord and Sud-Ubangi, Mongala and Kinshasa	399,894
2019	Flood	Riverine flood		Likouala, Cuvette, Plateaux departments	
2019	Flood	Heavy rains		Brazzaville, Pointe-Noire	213,000
2020	Flood	Heavy rains		Mbanza-Ngungu City; Noki, Disengomoka districts (Kongo Central Province)	4
2020	Flood	Riverine flood	Heavy rains	Sake Town (Masisi territory, North Kivu Province)	35,422
2020	Flood	Heavy rains		Territories of Kailo, Punia Kasongo (Maniema Province)	30,000
2020	Flood	Torrential rains		Bukama Territory (south Haut-Lomami Province).	73,000
2020	Flood	Heavy rains		Djugu territory (Ituri province)	500
2020	Flood			Bukavu, Uvira (South Kivu)	92,580
2020	Flood	Heavy rains		Likouala region	66,000
2021	Flood	Heavy rains		Bétou, Epéna and Dongou districts (Likouala); Sangha, Cuvette, Plateaux, Kouilou, Brazzaville	46,652
2022	Flood	Heavy rains		Bukavu (South Kivu province)	
2022	Flood	Heavy rains		Bunyakiri Town (Kalehe Territory, northern South Kivu Province); Bukavu City (northern South Kivu Province)	176,000
2022	Flood			Rubaya, Bihambwe, Masisi Territory (North Kivu Province, eastern DRC)	
2022	Flood	Heavy rains		Mount Ngafula, Ngaliema, Ngaba, Selembao, Kitambo, Bandalungwa, Bumbu, Kisenso, Ngiri-Ngiri, Barumbu, Matete, Limete, Masina, Makala, Gombe and Kalamu (Kinshasa)	84,711
2022	Flood	Heavy rains		Betou, Epena, Enyele, Bouanela, Liranga, Impfondo and Dongou districts (Likouala); Pokola, Pikounda and Kabo districts (Sangha); Mossaka, Loukola districts (Cuvette and Plateaux	164,679

1989	Industrial accident	Collapse	Diamond mine	Kasai province	
1999	Industrial accident	Collapse	Mine	North Kivu province	
2001	Industrial accident	Collapse	Ore mine		
2002	Industrial accident	Collapse	Mine de coltan	Near Goma	
2004	Industrial accident	Collapse	Uranium mine	Shinkolobwe (Katanga province)	
2005	Industrial accident	Collapse	Diamond mine	Kaplanga (Kasai Oriental)	
2005	Industrial accident	Collapse	Gold mine	Lunga (Katanga)	
2006	Industrial accident	Collapse	Copper mine	Ruashi (Lubumbashi)	13
2006	Industrial accident	Collapse	Copper mine	Tamatanda, near Lisaki (Katanga)	13
2006	Industrial accident	Collapse	Mine	Lemera (near Uvira, Bukavu)	10
2007	Industrial accident	Collapse	Diamond mine	Kabikabi mine, near Tshikapa (Kasai occidental)	
2009	Industrial accident	Collapse	Diamond mine	Mbuji-Mayi (Kasai Oriental)	
2011	Industrial accident	Collapse	Gold mine	South Kivu	
2014	Industrial accident	Other		Kolwezi (Katanga)	
2016	Industrial accident	Collapse	Gold mine	Makungu (Fitzi)	
2019	Industrial accident	Collapse Heavy rains	Mine	Nyabibwe (South Kivu)	9
2019	Industrial accident	Collapse	Gold mine	Kampene	3
2020	Industrial accident	Collapse Heavy rains	Gold mine	South Kivu	
2021	Industrial accident	Collapse	Gold mine	Bondo	6
1967	Landslide			Kivu province	668
1968	Landslide			Mandwe (Kivu province)	768
1989	Landslide			South-Kivu	148
2001	Landslide			Nord-Kivu province	
2010	Landslide	Heavy rains		Nord-Kivu province	1,167
2014	Landslide	Heavy rains		Bukavu district (Sud-Kivu province)	
2017	Landslide			Tora (Ituri)	10
2019	Landslide	Heavy rains		Mahanga, Masisi (Osso Banyungu, Nord-Kivu)	450
2019	Landslide	Heavy rains		Ituri Province	
2000	Miscellaneous accident	Fire	Ndjili International Airport	Kinshasa	258
2001	Miscellaneous accident	Other	Football stadium	Lubumbashi	50
2002	Miscellaneous accident	Explosion	Station d'essence	Goma	
2002	Miscellaneous accident	Explosion	Munitions	Ubira region (Sud Kivu)	

2002	Miscellaneous accident	Fire		Bukavu	
2014	Miscellaneous accident	Explosion	Ammunition depot	Mbuji-Mayi	50
2014	Miscellaneous accident	Other	Stampede	Kikwit	
2018	Miscellaneous accident	Fire		Bukavu (South Kivu)	500
2019	Miscellaneous accident	Fire	Houses	Bukavu	2,003
2020	Miscellaneous accident	Fire	Houses	Bukavu	500
2021	Miscellaneous accident	Other	Pollution	Kasai	1,000
2022	Miscellaneous accident	Other	Electrocution	Kinshasa	
2022	Miscellaneous accident	Other	Stampede	Kinshasa	
2003	Storm	Tropical cyclone		Yumbi area (Plateaux district, Bandundu province)	22,500
2003	Storm	Convective storm Lightning/ Thunderstorms		Bikoro area (Equateur district, Equateur province)	73
2005	Storm			Uvira area (Sud-Kivu district, Sud-Kivu province)	5,389
2006	Storm	Convective storm Tornado		Oicha area (Nord-Kivu district, Nord-Kivu province)	75,066
2008	Storm	Convective storm	Severe storm	Kikwit district (Bandundu province)	8
1948	Transport accident	Air	DC-4	Libenge	1
1948	Transport accident	Air	DC-3	Elisabethville	
1952	Transport accident	Air	DC-3	Idofa (Kikwit)	
1960	Transport accident	Air	DC-4	Lulualaba, near Bunia (Ituri)	
1987	Transport accident	Water	Bac "Maria"	Luapula	
1987	Transport accident	Rail		Kasumbalesa Shaba	
1989	Transport accident	Water			
1990	Transport accident	Air	Hercules C-130	Near Kinshasa	
1990	Transport accident	Water		Kinshasa	
1990	Transport accident	Air	Aerospatiale 262C	Kinkala	
1991	Transport accident	Rail		Dolosie (Near Pointe-Noire)	300
1992	Transport accident	Air	Fokker F27	Near Goma	
1992	Transport accident	Road		Lougima/Sibiti	
1993	Transport accident	Water	Bac "Matadi"	Brazzaville	
1993	Transport accident	Water	Ferry	Congo river	
1995	Transport accident	Water			
1996	Transport accident	Air	Cargo Antonov-32	Kinshasa	470

1996	Transport accident	Air	Ilyushin Il-76	Kinshasa	
1996	Transport accident	Road		Kinshasa region	
1996	Transport accident	Water	Boat "Ekizongwe"		
1996	Transport accident	Rail		Mweka	30
1997	Transport accident	Air	Propeller aircraft	Near Bunia	
1997	Transport accident	Air		Fizi area	
1998	Transport accident	Water		Lac Kivu	
1999	Transport accident	Road		Kinshasa	
2000	Transport accident	Air	Antonov-8	Pepa (Katanga Province)	
2000	Transport accident	Air	Antonov An-26	Near Tshikapa	
2000	Transport accident	Road		Mencao	17
2001	Transport accident	Water		Lac Kivu (Goma)	
2001	Transport accident	Water	Bort "Fatuma"	Au large de Kalemie, lac Tanganyika	
2001	Transport accident	Water	Ferry "Wembley II"	Near Katoka (Kasai occidental province)	
2001	Transport accident	Water		Tanganyika lake, near Uvira	
2001	Transport accident	Rail		Mvougounti (Near Pointe-Noire)	100
2002	Transport accident	Road		Popo Ya Kala (near Kinshasa)	
2003	Transport accident	Water		Livu lake (between Idjwi Isl. and Rwanda rive)	
2003	Transport accident	Air	Iliouchine-76		20
2003	Transport accident	Air	Antonov 26	Boende (Equateur province)	
2003	Transport accident	Water Violent wind	Baleiniere "Dieu merci"	Maindombe lake (Kesenge, Maidombe district, Bandunu province)	222
2003	Transport accident	Rail		Near Matadi (Bas Congo province)	
2004	Transport accident	Water		Congo river, Lukolela (Equateur province)	301
2004	Transport accident	Water Overloading		Tanganyika lake	
2004	Transport accident	Water		Kivu lake, near Kalehe (South Kivu province)	45
2004	Transport accident	Water	Boat MV Karibu and MV Mikenso	Kivu lake	
2004	Transport accident	Road		Imvouba	31
2004	Transport accident	Rail		Between Mindouli and Kingoyi (Pool department)	1
2005	Transport accident	Air	Antonov 26	Lubutu (Near Kisangani)	1
2005	Transport accident	Air	Antonov	Bitale (near Bunyakiri, Sud-Kivu region)	
2005	Transport accident	Road		Kinshasa	14

2005	Transport accident	Water Overloading	Baleinière	Kasaï Oriental	40
2005	Transport accident	Water Overloading		River Congo (Lukolela Territory, Equateur province)	179
2005	Transport accident	Water		Congo river (Kisangani)	
2005	Transport accident	Rail		Near Tshikapa, Katanga	
2005	Transport accident	Air	Antonov 26	Near Isiro	
2005	Transport accident	Water		Near Kimwabi Isl. on Congo River	41
2005	Transport accident	Water		Tshuapa river	
2005	Transport accident	Water surcharge	Naufrage	Rivière Tshopo (Province Orientale)	
2005	Transport accident	Rail		Maniema province	
2005	Transport accident	Air	Antonov 26		
2006	Transport accident	Air	Antonov 28	Near Bukavu (Sud Kivu)	
2006	Transport accident	Water		Tanganyika lake, between Fizi and Uvira	91
2006	Transport accident	Water	Boat "Ndeke Alali"	Tanganyika lake	18
2006	Transport accident	Water		Kivu lake	62
2007	Transport accident	Rail		Mokambo (Katanga)	9
2007	Transport accident	Air	Antonov	Kongolo (Katanga province)	2
2007	Transport accident	Air	Antonov 26	Kinshasa	30
2007	Transport accident	Road		Kikwit (Bandundu province)	20
2007	Transport accident	Water		Near Yakoma (Equateur province)	5
2007	Transport accident	Water		Near Idjwi lake	
2007	Transport accident	Water		Near Lisala (Equateur province)	227
2007	Transport accident	Water		Near Boende (Equateur province)	
2007	Transport accident	Rail		Tshibahu (near Kakenge station, Kasaï Oriental)	102
2007	Transport accident	Road		Kouilou department	
2008	Transport accident	Air	CD-9	Goma	146
2008	Transport accident	Air		Near Bukavu	
2008	Transport accident	Road		Matadi province	11
2008	Transport accident	Road		Near Kinshasa	23
2008	Transport accident	Water		Tanganika lake (Karanta province)	100
2008	Transport accident	Water		Kasaï Oriental	6
2008	Transport accident	Water		Edouard lake (East of RDC)	12
2008	Transport accident	Water		Near Moba (Tanganyika lake)	5

2008	Transport accident	Water			Lingunda (Equateur province)	
2008	Transport accident	Water				
2008	Transport accident	Water			Near Lukolela (Equateur province)	80
2008	Transport accident	Water			Near Mbandaka	
2009	Transport accident	Road			Near Kasumbalesa (Lubumbashi)	4
2009	Transport accident	Road			Pont-Kwango (Bandundu province)	2
2009	Transport accident	Road			Between Kikwit and Kinshasa	16
2009	Transport accident	Water		Boat "Kyabuntu"	Near Ankoro (Katanga)	97
2009	Transport accident	Water		Boat "HB Trans Nyalongo"	Near Tshikapa	40
2009	Transport accident	Water		Boat "Men Exel"	Bandundu province	50
2009	Transport accident	Water			Mai-Ndombe lake (Bandundu province)	276
2009	Transport accident	Rail			Tenke, Tshilongo (Katanga)	28
2010	Transport accident	Air		Bi-Turbopropulseur Let-140	Bandundu	1
2010	Transport accident	Road			Near Lisala (Equateur province)	
2010	Transport accident	Road			Near Sange (Kukavu, South Kivu)	25
2010	Transport accident	Road			Between Masisi-Walikale	40
2010	Transport accident	Road			Tanganyika lake	6
2010	Transport accident	Road			Tshikapa	10
2010	Transport accident	Water			Mangutuka	
2010	Transport accident	Water			Ruki river (Equateur province)	
2010	Transport accident	Rail			Near Pointe-Noire (Yanga)	400
2011	Transport accident	Air		Antonov	Pointe-Noire	18
2011	Transport accident	Air		Fokker 100	Kinshasa	
2011	Transport accident	Air		Boeing 727	Kisangani	
2011	Transport accident	Road			Bukumu (near Goma, North Kivu)	8
2011	Transport accident	Water			Kivu lake (Minova)	
2011	Transport accident	Water			Kasai river (Katoka)	30
2011	Transport accident	Water			Congo river (Near Nkana)	
2011	Transport accident	Water			Albert Lake	6
2011	Transport accident	Water			Tshuapa river, near Ingende	123
2011	Transport accident	Rail			Tshimbulu (Kasai Oriental)	20

2011	Transport accident	Road			Near Lisaki (Katanga province)	
2012	Transport accident	Water			Congo river (Maluku)	
2012	Transport accident	Air			Brazzaville	30
2013	Transport accident	Road			Kinshasa	
2014	Transport accident	Road Truck in a ravine			Kenge	5
2014	Transport accident	Water			Kivu lake (between Idjwi and Goma)	
2014	Transport accident	Water			Albert lake	9
2014	Transport accident	Water		M/V Mutamabala	Tanganyika lake (Katanga province)	
2014	Transport accident	Water			Congo river (Yakusu village II, near Kisangani)	105
2014	Transport accident	Water			Lake Kivu	
2014	Transport accident	Rail			Near Kamina	162
2015	Transport accident	Water			Congo river, Near Kwamouth (Bandundu province)	42
2015	Transport accident	Water			Congo river, Likelo	122
2015	Transport accident	Water			Kivu lake; Bukavu	
2016	Transport accident	Road			Mokambo	22
2017	Transport accident	Air		Antonov army plane	N'sélé (Great Kinshasa)	
2017	Transport accident	Road			Near Isiro	16
2017	Transport accident	Road			Bulambika	
2017	Transport accident	Water Overload and drunk pilot			Kasai river, Idiofa (Inongo province)	
2017	Transport accident	Water			Tanganyika lake (Tanganyika province)	
2017	Transport accident	Rail			Buyofwe (Lualaba province)	23
2018	Transport accident	Road			Mbakana (Kwango province)	
2018	Transport accident	Road			Kibulungu, near Tshikapa (Kasai)	
2018	Transport accident	Road			Mbuba	72
2018	Transport accident	Road			Between Kinshasa-Matadi	
2018	Transport accident	Water			Congo river (Mai-Ndombe province)	108
2018	Transport accident	Water			Momboyo river (Monkoto)	
2018	Transport accident	Water			Lisala (Mongala province)	30
2018	Transport accident	Water			Kasai river	
2018	Transport accident	Rail			Samba (Kasongo)	22
2018	Transport accident	Water			Congo river	

2019	Transport accident	Water			Paapa	
2019	Transport accident	Water			Mai-Ndombe lake (and province)	
2019	Transport accident	Rail			Kasaï	91
2019	Transport accident	Air		Dornier-228	Goma	17
2019	Transport accident	Road			Mbanza-Ngungu	18
2019	Transport accident	Road			Tanganyika province	10
2019	Transport accident	Water			Near Kabare	
2019	Transport accident	Water			Lake Kivu (near Bukavu)	
2019	Transport accident	Water			Dekese (Kasai)	
2019	Transport accident	Water			Congo river (Maluku)	76
2019	Transport accident	Water			Tshimbinda (Kasai)	
2019	Transport accident	Rail			Near Pointe-Noire	
2019	Transport accident	Road			Fungurume (Katanga)	12
2020	Transport accident	Road			Kinshasa	41
2020	Transport accident	Road			Matshia (Kabeya Kamwanga)	
2020	Transport accident	Water			Bankay	
2020	Transport accident	Water			Kasaï	
2020	Transport accident	Water			Ituri (Albert lake)	
2020	Transport accident	Water			Albert Lake (Ituri)	
2021	Transport accident	Road			Near Goma	
2021	Transport accident	Road			Kibuba (Kwango province)	
2021	Transport accident	Road			Haut-Katanga	
2021	Transport accident	Water			Congo river	125
2021	Transport accident	Water			Tanganyika lake, between Baraka and Uvira	11
2021	Transport accident	Water			Tanganyika, Mboko	62
2021	Transport accident	Water			Congo river, Mongala river	39
2021	Transport accident	Water			Kivu lake (South Kivu)	111
2021	Transport accident	Water				
2022	Transport accident	Road			South Kivu	
2022	Transport accident	Water			North Kivu, Edouard lake	
2022	Transport accident	Rail			Buyofwe	125
2022	Transport accident	Road			Lubudi (Lualaba province)	37

1977	Volcanic activity	Ash fall	Mt. Nyiragongo	Near Goma	60,000
2001	Volcanic activity	Ash fall	Mt. Nyamuragira	Nord-Kivu, Sud-Kivu provinces	
2002	Volcanic activity	Ash fall	Mt. Nyiragongo	Goma district (Nord-Kivu province)	110,400
2021	Volcanic activity	Lava flow Seismic activities	Mount Nyiragongo	Goma	288,404
2009	Wildfire	Land fire (Brush, Bush, Pasture)		Tshikula, Dibaya cities (Lulua district, Kasai Occidental province), Kongolo city (Tanganyika district, Katanga province), Mukishi city (Haut-Lomani district, Katanga province)	125
2010	Wildfire	Land fire (Brush, Bush, Pasture)		Kongolo city (Tanganyika district, Katanga province)	2,770
2015	Wildfire	Land fire (Brush, Bush, Pasture)		Katanga, Maniema provinces	57,003

23.4. List of Parks, Reserves and Other Protected Areas

(From Parks.It - <http://www.parks.it/world/CD/Eindex.html>)

National Parks

- Garamba
- Kahuzi-Biega
- Kundelungu
- Maïko
- Salonga
- Upemba
- Virunga
- Swa-Kibula
- Mangai
- Bombo Lumene
- Lwama
- Bushimaie
- Maika-Penge
- N'Sele

Marine Parks

- Parc Marin des Mangroves

Wildlife Reserves

- Réserve à Okapi

Hunting Reserves

- Bili-Uéré
- Azande
- Gangala-na-Bodio
- Mondo-Missa

Wetlands of International Importance (Ramsar)

- Parc Marin des Mangroves
- Virunga National Park

World Heritage Convention

- Garamba National Park
- Kahuzi-Biega National Park
- Salonga National Park
- Virunga National Park
- Réserve à Okapi

23.5. Consolidated Results from REA and NEAT+ Assessments

Consolidating and Ranking NEAT+ and REA Environmental Issues

The DRC Shelter Cluster conducted separate Rapid Environmental Impact Assessment (REA) and a Nexus Environmental Assessment Tool (NEAT+) assessment of environmental issues related to shelter and settlements humanitarian assistance in the Democratic Republic of the Congo. The REA and NEAT+ processes and results are covered in separate reports.

This document provides a process to consolidate the results from the two assessments and produce a single prioritized list of issues. This list will be used to develop an environmental management plan for the DRC Shelter Cluster Country Environment Profile.

The consolidation process involved the following:

- Similar issues from the NEAT+ assessment was consolidated into a single list.
- REA issues were added to and consolidated with the consolidated NEAT+ issues.

These results can be found in Environmental Issues Consolidation Table below.

The consolidated issues were then reviewed by a team from the DRC Shelter Cluster and associates and ranked according to three criteria:

1. Critical to success of shelter and settlement assistance.
2. Not critical but important to consider in shelter and settlement assistance.
3. Not core to successful shelter and settlements assistance. Note that these issues may, in fact, be addressed in shelter and settlements operations, but they will not be addressed before the *critical* and **important to consider** issues.

In addition, comments on the issues and their importance were noted.

The results of this process are recorded in the Environmental Issues Ranking table, below. The ranked issues will form the basis for an environment management plan for overall shelter and settlement operations. Note that the need for shelter and basic needs not met were considered overall top ranked issues. They are not in the following table but have been incorporated into the Environmental Impact Management Plan.

Environmental Issues Ranking Table The lower the number, the more significant (higher ranking) the issue.	
Issues	Consolidated Ranking 1, 2 or 3
Weak solid waste management	3
Poor availability of natural resources to meet basic needs without damaging the environment	5
High concentration of affected populations	3
Deforestation	5
Few livelihoods	7
Low self-sufficiency	6
High expectations of the affected populations in terms of external assistance	6
High overall need for humanitarian assistance	6
Soil erosion due to site development and shelter construction.	3
Risks posed by climate-related hazards: floods, severe erosion, landslides, severe weather.	3
High winds	4
Floods	4
Landslides	4
Wildfire	4
Earthquakes	5
Human disease	6
Animal disease	9
Industrial pollution	6
Pest affecting crops	7
Indoor air pollution: Design should consider local energy use practices and provide a kitchen space with adequate ventilation to minimize exposure to air pollution.	3
Need for water	4
Poor food security	8
Fire in camps	3

Limited access to energy	5
Need for transport	6
Basic health care	9
Basic need for domestic resources	9
Difficult accessibility for humanitarian assistance	5
Wastewater management: no adequate management infrastructure, environmental degradation and risk of vector transmission	4

Environmental Issues Consolidation Table			
NEAT Issue	Consolidated NEAT Issues	REA Issues	Consolidated List
Waste Management			
Low solid waste management capacity, disease risk	Weak solid waste management	Poor ability of the affected population to safely manage waste	Weak solid waste management
Weak capacity for environmental governance and management			
Solid waste management: no adequate service and infrastructure to manage construction waste			
Natural Resource Use			
Deforestation rate higher than regeneration capacity	Deforestation	Poor availability of natural resources to meet basic needs without damaging the environment	Poor availability of natural resources to meet basic needs without damaging the environment
Risk of deforestation		High concentration of affected populations	High concentration of affected populations
Deforestation: heavy dependence on local wood supply			Deforestation
Deforestation: the use of wood and charcoal accelerates the loss of forests; this degrades local ecosystems and harms community resilience and livelihoods.			
Lack of domestic energy: leads to increased dependence on fuel consumption.	Sourcing energy can lead to negative environmental impacts		
Natural Resource Management			
Poor understanding of ecosystems by populations.	Poor understanding of ecosystems by populations, making		Poor availability of natural resources to meet basic needs without damaging the environment

making effective management difficult	effective management difficult		
Fragile ecosystems and/or niches: shelters built close to high value or protected ecosystems	Fragile ecosystems and/or niches: shelters built close to high value or protected ecosystems		
High concentration of population, risk of pressure on resources	Excessive pressure on natural resources.		
Strong dependence of populations on the natural environment (threat to livelihoods and social cohesion)			
Low regenerative capacity;			
Livelihoods			
		Basic needs not met	Basic needs not met
		Few livelihoods	Few livelihoods
		Low self-sufficiency	Low self-sufficiency
		High expectations of the affected populations in terms of external assistance?	High expectations of the affected populations in terms of external assistance
		High overall need for humanitarian assistance	High overall need for humanitarian assistance
Soil Erosion			
Significant land and soil degradation	Soil erosion due to site development and shelter construction.		Soil erosion due to site development and shelter construction.
Risk of soil erosion			
Risks of erosion: the design should consider the provision of appropriate structural support and foundations when designing the shelter.			
Soil degradation and erosion: clearing or excavation activities			

Degradation and erosion of land and soil: land used for the construction of shelters, etc.			
Hazards			
Availability and accessibility to natural resources may be affected by changing climatic conditions	Risks posed by climate-related hazards: floods, severe erosion, landslides, severe weather.	Wildfire High winds	Risks posed by climate-related hazards: floods, severe erosion, landslides, severe weather.
Exposure to climatic risks: flood plains, rivers		Floods	High winds Floods Landslides Wildfire Earthquakes Human disease Animal disease Industrial pollution Pest affecting crops
Exposure to natural risks: erosion, landslides, etc.		Earthquakes	
Climate risk: increased exposure to climate-related risks and variability; energy consumption contributes to climate change		Human disease Landslides Animal disease Industrial pollution Pest affecting crops Difficult accessibility for humanitarian assistance	
Indoor air pollution			
Indoor air pollution: Design should consider local energy use practices and provide a kitchen space with adequate ventilation to minimize exposure to air pollution.	Indoor air pollution: Design should consider local energy use practices and provide a kitchen space with adequate ventilation to minimize exposure to air pollution.		Indoor air pollution: Design should consider local energy use practices and provide a kitchen space with adequate ventilation to minimize exposure to air pollution.
Shelter and Settlements Interventions			
		Need for water	Need for water Need for shelter Poor food security Fire in camps Limited access to energy Need for transport Basic health care Basic need for domestic resources Difficult accessibility for humanitarian assistance
Hot and humid climate: consider thermal comfort inside the shelter by designing it well ventilated, blocking sunlight and having a low thermal capacity.	Hot and humid climate: consider thermal comfort inside the shelter by designing it well ventilated, blocking sunlight and having a low thermal capacity.	Need for shelter Poor food security Fire in camps Limited access to energy Need for transport Basic health care Basic need for domestic resources Difficult accessibility for humanitarian assistance	
Waste Water			
Wastewater management: no adequate	Wastewater management: no adequate		Wastewater management: no adequate management infrastructure, environmental

management infrastructure, environmental degradation and risk of vector transmission	management infrastructure, environmental degradation and risk of vector transmission		degradation and risk of vector transmission
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23.6. Environment Impact Management Plan – DRC IDP Response

This section lays out a programmatic **Environmental Impact Management Plan** (EIMP) for shelter and settlements-related humanitarian assistance to internally displaced populations in the Democratic Republic of Congo. The EIMP was developed from a DRC humanitarian strategy level rapid environmental assessment and 17 focus group-based NEAT+ assessments conducted in South Kivu and Tanginika provinces.¹¹ using a combination of *good enough*¹² and rapid assessment approaches.

The issues identified in the assessments were ranked according to three criteria, whether an issue was judged to be:

1. Critical to success of shelter and settlement assistance.
2. Not critical but important to consider in shelter and settlement assistance.
3. Not core to successful shelter and settlements assistance. Note that this group of issues may, in fact, be addressed in shelter and settlements operations, but they will not be addressed before the critical and important to consider issues.

The **Environmental Impact Management Plan** table below lists the ranked issues together with management actions and additional guidance. Individual projects are responsible for integrating specific management measures into implementation plans.

The combined assessments identified the three following issues as important:

- High overall need for humanitarian assistance.
- Difficult accessibility of IDPs for humanitarian assistance.
- Basic IDP needs not met.

These issues relate directly to the nature of the humanitarian situation and the means available on the part of humanitarian and other stakeholders to reduce the impacts of displacement.

Addressing these issues is linked directly to the scale and effectiveness of humanitarian operations and should be resolved as operations expand in scope and impact. This presumption should be periodically confirmed and alternative approaches to providing humanitarian assistance developed if needed.

A need for shelter is not listed in the following table. It is anticipated that any response by the DRC Shelter Cluster will involve providing shelter materials as an initial response. Thus, shelter is a critical issue, and additional environmental screening measures for shelter assistance are provided below.

In addition to the actions in the table below, specific additional environmental management actions are required for the following interventions:

- **NFI assistance**
 - Minimize packaging where possible.
 - Establish a process for collecting and reusing, recycling or repurposing packaging waste.

¹¹ The NEAT+ report is available from the DRC Shelter Cluster.

¹² The *good enough* approach recognizes that perfect results are not generally possible in humanitarian response. The need to respond to crisis requires that information and analysis which are *good enough* for immediate needs can be used. The *good enough* approach does recognize a need to continually update data and analysis as the crisis progresses.

- **“Cash” assistance**, for general or specific uses
 - Conduct an [Emergency Market Mapping Assessment](#) (EMMA) to understand and address market price and supply-and-demand impacts and impact on natural resources supplies and qualities from increases supplies of disposable income.
- **Shelter and other building construction and site development:**
 - Conduct a [Shelter Methodology for the Assessment of Carbon](#) (SMAC) based assessment on bills of quantity and consider alternatives to reduce the carbon footprint of construction materials and methods.
 - Conduct an [EMMA](#) to understand and address market price and supply-and-demand impacts and impacts of sourcing construction materials locally, from suppliers or directly from natural resources. This assessment should include soils, water, sand, rocks, wood, grass and any other natural material used in construction.
 - Develop and implement a plan to address any transitory negative impacts on the environment, e.g., borrow pits, access roads, supplies storage yards, disposal of waste and debris, etc.
 - A site-specific environmental management plan should be developed for site development work. See [Green Recovery and Reconstruction Training Toolkit](#) Module 4 - Site Selection and Development for guidance on plan development.
 - Minimize the reduce the removal of trees and other vegetation during construction and replace two-for-one trees which has been removed.
 - Use the following [Green Recovery and Reconstruction Training Toolkit](#), Modules as guidance for specific activities:
 - 4 - Site Selection and Development
 - 5 - Materials and Supply Chain
 - 6 – Construction
 - 7 - Water and Sanitation and
 - 8 – Livelihoods.

Environment Impact Management Plan – DRC IDP Response			
#	Issue	Action	Additional Information
Core Issues for Shelter and Settlements Interventions			
1	Weak solid waste management	Incorporate a waste management system into the project.	https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjohcz1u-P9AhVw7LsIHbNRBAAQFnoECAsQAQ&url=https%3A%2F%2Femergency.unhcr.org%2Fentry%2F33196%2Fwaste-management-standards&usq=AOvVaw0XgzNL6VrNgvX8aDGvjz- https://www.google.com/url?sa=t&rct=j&q=&esrc=s&source=web&cd=&cad=rja&uact=8&ved=2ahUKEwjohcz1u-P9AhVw7LsIHbNRBAAQFnoECA0QAQ&url=https%3A%2F%2Fpolicy-practice.oxfam.org%2Fresources%2Fdomestic-and-refugee-camp-waste-management-collection-and-disposal-126686%2F&usq=AOvVaw3N0MfZPIWdjzeCEuEwqBLw
2	High concentration of affected populations	Develop and implement plans to congest sites.	Site decongesting can take place as part of site upgrading and occupation reviews (e.g., periodically checking to see if shelters are actually occupied).
3	Soil erosion due to site development and shelter construction.	Incorporate soil erosion management activities into establishment and operation of sites	Consider the use of nature-based methods and labor intensive works as part of site upgrading plans.
4	Risks posed by climate-related hazards: floods, severe erosion, landslides, severe weather, high winds, floods, landslides, wildfire.	Develop preparedness, warning, response and risk reduction plan for climate-related hazards.	• Link flood warnings to weather forecasts. See Flood Green Guide for more information. Warning system can be locally developed and managed. • Assess landslide risk using local experts and/or remote sensing. • Include an extensive education element, for children as well as adults, as part of plans.
5	Indoor air pollution: Design should consider local energy use practices and provide a kitchen space with adequate ventilation to minimize exposure to air pollution.	Incorporate measures, e.g., smokeless stove, education on fuel selection, chimney, ventilation, to reduce smoke from cooking.	Consult these sites for guidance in addition to experts on DRC: • Global Plan of Action for Sustainable Energy: https://unitar.org/sustainable-development-goals/peace/our-portfolio/global-platform-action-gpa-sustainable-energy-displacement-settings • https://energies2050.org/ethicarbon/improved-cook-stoves-democratic-republic-of-the-congo-drc/?lang=en • https://www.wfp.org/publications/safe-initiative and https://docs.wfp.org/api/documents/WFP-

			0000050327/download/?_ga=2.233211735.874204642.1679250223-718457720.1679250215 .
6	Fire in camps	Implement a safe fire management plan under the project.	- Consult the NGO Kindling for guidance. - Decongest camp sites over time to reduce risk of fire spreading.
7	Need for water	Assess water demands and supply options and design components which always permit minimum standards. Consider alternate water supplies.	To be coordinated with WASH.
8	Wastewater management: no adequate management infrastructure, environmental degradation and risk of vector transmission	Incorporate wastewater management system in project design and implementation.	To be coordinated with WASH.
9	Poor availability of natural resources to meet basic needs without damaging the environment and deforestation and basic need for domestic resources	Assess natural resource demands based on camp design, size and household needs and develop an extraction management plan for surround resource source area.	The plan should include issues like fuel wood use based of stoves provided and water requirements and seasonal supply. Information on the amount of wood, sand, clay, grass or other local natural resources needed for construction, etc. can be identified in bills of quantity.
10	Earthquakes	Assess earthquake risks to structures and systems (e.g., water supplies) and implement risk reduction as part of project design or site upgrading.	
11	Limited access to energy	Assess energy needs for cooking, heating, lighting and security and develop a plan to address gaps.	- Solar powered lamps, for use at the household level and for site security (e.g., near latrines) can be effective low-maintenance options. See the following for more information]: https://www.unhcr.org/5b3cb5bb7.pdf https://unfoundation.org/blog/post/5-ways-solar-lighting-can-improve-lives-of-girls-and-women/ https://unitar.org/sustainable-development-goals/peace/our-portfolio/global-platform-action-gpa-sustainable-energy-displacement-settings.

			See https://static1.squarespace.com/static/5bc4882465019f632b2f8653/t/606ec4143f9cdf685ba3b6c6/1617872087113/RE+STUDY+-+Lusenda+refugee+camp+%28FV%29.pdf for an energy assessment report.
12	Low self-sufficiency, few livelihoods	Develop livelihoods support activities, including cash or food for work or other forms of compensation, linked directly to project tasks to grow assets available to IDPs.	Note that many construction, site development and WASH components of a shelter and settlements project can include high levels of work from the IDPs receiving assistance. These opportunities should be maximized, to build assets and strengthen ownership of the resulting facilities.
13	Need for transport by IDPs	Incorporate road improvements in site development plans.	Note that road improvements should be focused on existing roads or access and not include opening new locations to road access.
14	Human disease and Limited basic health care	To be address in consultation with the Health and WASH Clusters.	May be considered a critical issue by the health sector.
15	Industrial pollution	This issue needs to be reviewed on a site-by-site basis.	
Not Immediately Core to Shelter and Settlements Operations			
16	Basic need for domestic resources	This issue was not rated as critical at the programmatic level but needs to be assessed directly for each internally displacement.	The Shelter Cluster normally provides a standard package of NFIs to internally displaced persons. A separate environment-focused review of the contents of this package is suggested.
17	Poor food security	Coordinate with WFP and FAO on measures to improve food security.	Linked to possible “cash” and livelihoods support activities in shelter and settlements interventions.
18	Animal disease	Coordinate with FAO.	
19	Pest affecting crops	Coordinate with FAO.	

23.7. Shelter Bills of Quantity

23.7.1. Stick Wall Shelter - Zinc Roof, 4.5x3.5m

DEVIS QUATITATIF ET ESTIMATIF D'UN ABRIS DE KOMANDA						
Mur en sticks extérieur et intérieur en pisé de dimension=3,50m, l=4,50m, H=2,20m						
TRAVAUX A FAIRE	DESIGNATION	UNITE	QTE	P.U (\$)	COUT (\$)	Descriptif de l'Abri construction locale
Superstructure en sticks et ceinture en Perche	Sticks de superstructure de 0,07x0,15x4,00m	Pce	9	2.00	18.00	Après la fouille de fondation, 9 sticks de superstructure seront pour l'élévation de murs de l'Abris de dimension (3,50mx4,50m) H= 2,20m pour le support toiture
	Perche de diamètre 8cm, longueur 3,5m	pce	4	1.80	7.20	Sera utiliser pour la ceinture de murs extérieur pour faire assoir 3 fermes de l'Abri
	Clous de 12cm	kg	1	2.50	\$ 2.50	liane pour les sticks avec les perches d'abri
Sous total					27.70	
Remplissage des murs extérieur et intérieur en sticks , tissage de reseaux et boueage	Stick pour mur diam (5 a 7cm) 3,5m de longueur écart de 30cm	pce	10	2.00	20.00	Elevation des sticks intérieurs de l'abri de 2 pieces chambres et un salon
	Roseaux pour mur de 2,5m de longueur esp 20cm de 35 pièces	botte	5	0.50	2.50	Pour tissage des murs de 19,5 ml à la hauteur de mur de 2,20 et 2 murs pignons de 1,10m
	Corde pour mur liane locales	rouleau	2	5.20	10.39	Liane pour tissage de roseaux au murs
Sous total					32.89	
Toiture	Chevrans 7x7x400 cm	pce	8	4.00	32.00	Pour la fixation de la charpente (pennes, arbalétriers, fiches, contre fiche et entrée
	Clous de 15cm	kg	0.5	\$ 2.50	\$ 1.25	Liane pour la fixation de la charpente
	Clous de tole	kg	1.5	\$ 3.00	\$ 4.50	Pour fixation des tôles
	Tôles BGW32 ondulées	pce	14	\$11.19	\$ 156.66	Pour fixation de la couverture de l'abri à deux versants de Rangé de 4,5m de long et larg. utile tôle de 0,75m
	Clous de 10cm	Pce	1	\$ 2.50	\$ 2.50	Liane pour la fixation de la charpente
	Clous de 12cm	kg	1	\$ 2.50	\$ 2.50	Liane pou la fixation de la charpente
Sous total 3					\$ 199.41	
Huisserie	Porte de 0,80x2,00m complète	pce	1	\$14.00	\$ 14.00	Pour la protection des personnes
	Fenetre 40x60 cm avec encadrement	pce	1	\$ 7.00	\$ 7.00	Pour donner la lumière et aération dans l'Abri

	Cadenas	pce	1	\$ 2.00	\$ 2.00	Pour la sécurité des bien à l'intérieur de l'Abri
	Porte cadenas	Pce	1	\$ 2.00	\$ 2.00	Pour la sécurité des bien à l'intérieur de l'Abri
Sous total 4					25.00	
Total matériaux					285.00	
Main d'Œuvre: par Abris(fixation de la charpente et couverture en tôle)					15.00	MO pour la fixation de la charpente d'Abri (charpentiers)
TOTAL (Matériaux+MO)					300.00	
COUT TOTAL DEVIS ABRIS						
DEVIS D'UNE ABRIS		\$300				
TOTAL 700 ABRIS		\$210,000				

23.7.2. Wood Walls – Zinc Roof, 4.5x7m

DEVIS QUANTITATIF ET ESTIMATIF POUR ASSISTANCE EN KIT MATERIAUX DE CONSTRUCTION EN PLANCHE D'UN ABRIS DE 4,5 x 7 m AU SUD KIVU						
Désignation	Unité	Quantité	Prix Unitaire	Prix Total matériaux	Prix Total CBI	Prix Total abris
Préparation Terrain	FF	0	Contribution du bénéficiaire			
Chevron 6 x 6 pour l'ossature des murs et de la charpente	Pce	60	2	120		
Planche	Pce	80	1.8	144		
Madrier de 7x10	Pce	8	3	0	24	
Couverture en Tole BG 32	Pce	23	8	184		
Porte 200x80, y/c quincailleries (verrou/targette et cadenas)	Pce	1	25		25	
Fenêtre 50x50, y/c quincailleries (verrou/targette).	Pce	3	10		30	
Clous de tôle	Kg	3.5	2.5	8.75		
Clous ordinaire de 8 et 10 cm	kg	10	2	20		
Bitume d'étanchéité (peinture bois extérieur)	Litre	5	1	5		
Main d'œuvre (ossature, charpente et couverture)	FF	1	50	0	50	
TOTAL				\$ 481.75	\$ 129.00	\$ 610.75

23.7.3. Emergency Shelter – Plastic Sheet, 4x3x3m

DEVIS QUANTITATIF ET ESTIMATIF POUR ASSISTANCE EN KIT MATERIAUX POUR LA CONSTRUCTION D'UN ABRIS D'URGENCE DE 4X3X3 m					
Désignation	Unités				
		Quantité	Prix Unitaire	Prix Total	Commentaire
Préparation Terrain	FF				Contribution du Bénéficiaire
Stick de rondin pour l'ossature du mur et charpente ou chevron (5x5x4 m)	Pce	30	1	30	
Bache en plastique (4m x 5m)	pce	3	20	60	

Chevron 5 x 5 pour cadre de la porte (80x190 cm)	Pce	4	2	8	
Charnière et porte cadenas	Pce	2	2	4	
Cadenas petit format (300 mm)	piece	1	2	2	Contribution du Bénéficiaire
Clous ordinaire de 10 cm	kg	2	2	4	
Clous ordinaire de 4 cm	Kg	1	3	3	
Main d'œuvre (couverture)	FF	1	11	11	
TOTAL				\$ 122.00	

23.7.4. Wood Walls – Zinc Roof, 4.5x5m

DEVIS QUANTITATIF ET ESTIMATIF POUR ASSISTANCE EN KIT MATERIAUX DE CONSTRUCTION EN PLANCHE D'UN ABRIS DE 4,5 x 5 m AU SUD KIVU						
Désignation	Unité	Quantité	Prix Unitaire	Prix Total matériaux	Prix Total CBI	Prix Total abris
Préparation Terrain	FF	0	Contribution du bénéficiaire			
Chevron 5x5 longueur 3,10 les murs et la charpente	Pce	55	2	110		
Planche, CBI ou pas?	Pce	70	1.8	126		
Madrier de 7x10 longueur 3,10 CBI ou pas?	Pce	12	3	0	18	
Couverture en Tole BG 32	Pce	15	8	120		
Porte 200x80, y/c quincailleries (verrou/targette et cadenas)	Pce	1	25	0	25	
Fenêtre 50x50, y/c quincailleries (verrou/targette).	Pce	2	10	0	20	
Clous de tôle	Kg	2	2.5	5		
Clous ordinaire de 6, 8 et 10 cm	kg	9	2	18		
Bitume d'étanchéité (peinture bois extérieur)	Litre	5	1	0	5	
Main d'œuvre (ossature, charpente et couverture)	FF	1	40	0	40	
Total				\$379.00	\$108.00	\$487.00

23.8. ICRC Analysis of Local and Imported NFIs

Report available from Patrick Oger (paoger@icrc.org), Project Manager, Eco-Design Tarpaulin Project, Sustainable EHI Project. ICRC Geneva.



Comparaison EHI
Foire Congo - ICRC st

23.9. Non-Food Item Lists

Description d'Article menagers
Casserole, 5 litre
Casserole, 7 litre
Tasse, INOX, 0.35 litre
Cuillere, INOX
Bol, INOX, Non-Magnetique, 22 cm
Bol, INOX, Non-Magnetique, 28 cm
Louche Cuisine
Couteau Cuisine
Savon de Lessive, 800g
Couverture
Sac en plastic
PAGNE, 100% COTON, WAX 6 YARDS
BIDON RIGIDE, 20 L
BACHE 4X5 M
NATTE
MOUSTIQUAIRE
BASSINE DE LAVAGE EN PLASTIQUE (RONDE) 22 Litres
Description du kit d'hygiène menstruelle
Piece de tissus (pagne demi hollandais)
Sous vetement (sixaine)
Savon de bain
Savon de lessive (600 gr)
Seau en plastique 20l

23.10. Guidance on Integrating Environmental Considerations into Cash Assistance

Decisions to use cash should be based on market assessments (e.g., use of the [Emergency Market Mapping and Analysis](#) toolkit. Demands on natural resources, particularly for shelter materials (e.g., wood, grass) as well as transport, should be part of this analysis.

Consideration of using a cash assistance modality should include¹³:

- **Market analysis** – as part of, e.g., an EMMA analysis, questions about the sources of, and environmental sustainability of harvesting, natural resources should be answered.

¹³ Adapted from [Review of Environmental Impact of Cash Based Interventions and In-Kind Assistance](#).

- **Analysis of household energy use** – this should not only be for when cash is provided to purchase fuel, but also when cash is provided to purchase items which need fuel, e.g., stoves, cooking items, lighting.
- **Analysis of possible commodity supplier** – in terms of whether commodity suppliers may be engaged in activities which directly harm the environment or pose other issues (e.g., child labor in manufacturing).
- **Analysis of service providers** – both in terms of whether suppliers may be engaged in activities which directly harm the environment and whether their operations can be modified to reduce environmental impacts, e.g., establishing a waste packaging recovery and recycling activity).

Note that these actions overlap with steps which should be taken when physical NFIs are provided (see Section 18, above).

Further information and guidance on cash and environment can be found in the following;

- **Review of Environmental Impact of Cash Based Interventions and In-Kind Assistance**
- **The Environmental Impact of Cash and Voucher Assistance**
- **Looking Through an Environmental Lens: Implications and opportunities for Cash Transfer Programming in humanitarian response**
- **Cash - The interdependence between Cash Transfer Programming (CTP) and the environment in humanitarian response**
- **Checklist CVA and Environment**

The Shelter Methodology for the Assessment of Carbon CO² calculator can be used to assess the possible generation of CO² equivalents from different sources and modes of transport.

There is also a Global Shelter Cluster Shelter and Cash Working Group and a CALP Network CVA, the Environment and Climate Change Community of Practice which can be contacted for advice.

Authors and Institutions

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Environment Community of Practice

Global Shelter Cluster
<https://sheltercluster.org/communitypractice/environment-communitypractice>

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