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YEMEN

Environmental Country Profile for Shelter and Settlement

1st Edition | September 2023

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Cover, upper photo: Photo by SHS Yemen. Construction of shelter prototype in Al Buraiqah district, Aden governorate.

Cover, lower photo: Photo by UNHCR Yemen. Transitional shelter in Abs, Hajjah.

Back cover: Photo by Shelter Cluster Yemen. Shelter situation in Shebat Al-Sadat IDP hosting site, Khairan Al Muharak district, Hajjah Governorate.

Yemen Environmental Country Profile for Shelter and Settlements

(September 2023)

Contents

NOTES:

- Italicized text has been copied directly from the sources indicated.
- Numbers at the end of sentences in extracted (italicized) text refer to footnotes in the original. Original documents should be consulted to access these footnotes.

Suggested Further Actions

As the **Yemen Environment Profile** has been developed during an ongoing crisis, 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 hinder implementation.

Section 4.2.

- The Yemen Shelter Cluster should incorporate a green screening process in evaluating projects included in humanitarian response plans for Yemen (see Annex 22.6).
- The Shelter and CCCM Clusters should form the core of a settlements-focused environment working group to
- Assure strong coordination on environmentally sound humanitarian response, and,
- Provide a mechanism for support on NEAT+ assessments. One of the NEAT+ sections covers shelter. However, information for other sections, particularly the sensitivity section, are more likely to be available through CCCM-based engagement in Yemen, making a joint Shelter-CCCM NEAT+ effort efficient.

Section 6.4

- Ascertain from the Environmental Protection Agency whether any shelter or settlement activities would require environmental reviews.

Section 7.3

- Operational research should be used to assess the demand for wood for fuel and shelter construction and contribute to planning nature-based solutions to this threat to the environment (see Section 21).
- The **Overview of IDP Sites and Areas of Environmental Significance** map should be updated with more accurate information on parks, preserves and protected areas (see Annex 22.4) and plans made to minimize negative environmental impacts where they coincide or are adjacent.[1] "Protected areas" should include locations designated by neighboring or adjacent communities as places which should be protected.

Section 8.2

- The online REA should update annually to provide strategic input into planning by the Cluster and as part of the HNO/HRP process.
- The Cluster should implement NEAT+ assessments for a representative selection of IDP sites in cooperation with the CCCM Cluster and use this incorporate this information into adjustments to operations, plans and project designs.
- Different levels of possible harm to women, girls, boys and men related to shelter and settlement activities should be research further and mitigation and reduction measures implemented where appropriate.

Section 9.3

- Adopt and regularly monitor implementation of the EMP.
- Incorporate the **Rapid Environmental Screening** approach into the screening of HRP projects.

Section 10.2

- Incorporate the Environmental Assessment results (Section 8), Environment Management Plan (Section 9) and indicators from the Shelter Cluster Tip Sheet into the development of HNO and HRP documents.

[1] "Adjacent" should be defined locally as the distance within which IDPs could travel to access natural resources in parks or other protected locations.

- Incorporate NEAT+ results, when available, into the development of HNO and HRP documents.
- Incorporate at least one environmental indicator based on environmental issues identified in Environmental Impact Assessment (Section 8) and Environment Management Plan (Section 9).

Section 11.2

- Expand the use of remotely sensed and site attribute data to assess site suitability and environmental impact over time.

Section 12.2

- The Land Suitability Assessment Form and NEAT+ should be compared to define overlaps and gaps, with a possible merging of results to provide a more comprehensive environmental review than currently possible with either tool. In this process, the Green Recovery and Reconstruction Training Toolkit module on site planning should also be consulted to identify any topics which could be added to the Land Suitability Assessment Form or used in site preparation.

Section 14.2

- The Shelter Cluster, in cooperation with the CCCM and other Clusters and the IDP ExUnit or SCMCHA, should develop standard site decommissioning guidance and apply this guidance for sites which are managed by the IDP ExUnit or SCMCHA

Section 15.2

- The Shelter Cluster should consider further design work on climate-appropriate shelter designs which meet Sphere Standard indicators for ambient heat.
- The Shelter Cluster should consider conducting environmental scorecard assessments of shelter designs to identify possible reductions in environmental impacts and as input into alternative designs.
- The Shelter and WASH activity components of NEAT+ should be used to assess existing shelter sites.
- For sheltering efforts of any type which exceed 100 families, the Shelter Cluster should consider developing a short checklist to review environmental impacts from construction activities. This checklist can be based on the standard environment management plans used for construction projects.

Section 16.3

- The Shelter Cluster should consider a FNI scorecard assessment to identify penitential to reduce environmental impacts.

Section 17.2

- The Shelter Cluster should assess to what degree packaging for NFIs can be reduced, with any critical packaging repurposed or recycled where not otherwise used. Consult the Joint Initiative on Packing Waste and the WREC project for more guidance.

Section 18.2

- The Shelter Cluster, in cooperation with partners, should conduct a policy-process-products-and-impacts assessment of IDP energy needs and uses and use the results to refine approaches to supporting IPS energy needs to minimize negative impacts on the environment.

Section 20.2

- As shelter and settlements aspects of a durable solutions approach for Yemen become clearer, the Shelter Cluster should consider conducting a strategic environmental impact assessment coving the areas of direct concern, including construction, water, access to natural resources, include sand and earth, land and property issues and climate adaptation. This assessment can, largely, be based on currently available information and projections of changes in shelter and settlements size, number, content and location. Support from the Netherlands Commission for Environmental Assessment may be

possible and collaboration with other clusters, particularly WASH and CCCM, beneficial.

Section 21.2

- The Shelter Cluster should raise the issue of including risk reduction into the Anticipatory Action pilot and incorporating the risk reduction approach as a multiyear effort in the annual humanitarian planning cycle.
- As work on durable solutions progresses, flood risk reduction using nature-based solutions should be included in planning and implementation to integrate the environment and natural resource management into this effort.
- Separate efforts by the Shelter Cluster to address flood risk should incorporate nature-based solutions.

1. Why this Environment Profile?

1.1. Using Environmental information to Improve Humanitarian Response

Disasters and other crises often have a negative impact on the environment. At the same time, some of the factors contributing to a crisis or disaster can arise from environmental conditions. In this situation, humanitarian assistance can increase, or reduce, negative environmental conditions.

A key to avoiding worsening environmental conditions, or using humanitarian aid to reduce negative environmental conditions, is having the right information available to humanitarian operations, from assessment through implementation. The challenge is that the environmental information needed can be spread over many sources and available in many forms.

The **Yemen Environmental Country Environment Profile for Shelter and Settlements** (the **Profile)** addresses a need to have environmental information readily available to humanitarian personnel responding to a disaster or crisis. The **Profile** collects, and where useful, provides analysis of, a range of environment-related information. As such, the **Profile** is a reference to, not a new report on, the environment in Yemen.

Not all the **Profile** content is needed by any one humanitarian staff or program. But some of the information will be useful to some part of the humanitarian response at some time during the response.

The **Yemen Profile** has been developed during an on-going humanitarian operation. As a result, assembling the **Profile** provided an opportunity to identify opportunities to improve the environmental footprint of ongoing or future shelter related operations.

These opportunities are identified under the heading of **Suggested Further Actions** in each section and summarized above. The suggestions range from very specific and simple to broad and complex, and from simple changes to projects to topics best addressed at the humanitarian programming level. It is up to the Yemen Shelter Cluster and collaborators to decide on what to do with the suggestions.

Because the **Profile** was developed for an ongoing response, some content is likely to change on short notice and on an annual basis to reflect changes to humanitarian plans and programming. Although an overused phrase, the **Profile** should be seen as a living reference, never reaching a final content until there is no longer a need for humanitarian assistance in Yemen.

1.2. Development of the Profile

The **Profile** was developed through a combination of desk-based research, consultations with the Shelter Cluster in Yemen and a field mission to Aden. The main counterparts in Yemen were Martha Kow Donkor, and her predecessor, John Wain, Senior Shelter Cluster

Coordinator, National Level, as well as Aiman Al-Zoraiky, Shelter Cluster Technical Specialist, Ali Al-Eryani, Shelter Cluster Information Manager. Essam Adduais, Sub-National Shelter/NFIs Cluster Coordinator, Aden Hub and Mohammed Nasser Mubarak, Information Management Associate.

Profile development involved consultations with Shelter Cluster partners in Aden and Sanaa and meetings with OCHA, UNDP and RCO staff. In Aden, meetings were held with Internationally Recognized Government (IRG) Environmental Protection Agency, the Executive Unit for IDPs and the Civil Defense Authority. Meetings were also held with the Supreme Council for the Management and Coordination of Humanitarian Affairs, Clean Fund, Environmental Protection Authority, Ministry of Water and Environment and Civil Protection Authority of the de facto governing authorities in Sana'a.

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 Yemen and
  - An identification of actions to be considered in integrating the environment into ongoing and future shelter and settlements operations.
- An **Annex**, which provides, where necessary, more information to complement the topical summaries provide in the **Profile Summary**.

1.4. Updating of the Profile

As the **Yemen Profile** has been developed for an on-going crisis, sections will need to be updated on an at least an annual basis. An annual **Profile** 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 Yemen should consider an updating relevant parts of the **Profile**.

2. Country Context

2.1. Current Crisis

Condensed from **Humanitarian Response Plan Yemen, Humanitarian Programme Cycle 2023**.

In 2023, two-thirds of the population of Yemen—21.6 million people—will need humanitarian assistance and protection services.1 The 2023 Humanitarian Response Plan for Yemen (HRP) requires US$ 4.3 billion to reach the 17.3 million most vulnerable people in need (PiN) of humanitarian support as a result of protracted conflict, displacement and economic deterioration, compounded by recurrent natural disasters.

…

The humanitarian response in Yemen will support people facing multiple vulnerabilities, including but not limited to internally displaced persons and those attempting to return, Muhamasheen, persons with disabilities, and migrants and refugees. The response approach will be organized around three strategic objectives focusing on life-saving activities, resilience contributing to durable solutions, and the centrality of protection. The response strategy in 2023 aims to address immediate and significant levels of needs, delivering urgent life-saving humanitarian assistance to 14 million people ... At the same time, it recognizes the importance of working closely with development partners to prevent a broader collapse of basic services and economic conditions that would further exacerbate the dire humanitarian situation.

Humanitarian, development and peace (HDP) actors will engage in coordinated action under the strategic umbrella of the recently established Yemen Partners Group (YPG) and its operational structure, the Yemen Partners Technical Team (YPTT) and building on opportunities as presented in the UNDSCF. These

coordination structures aim to expand the existing HDP nexus efforts, as well as the operationalization of the Durable Solutions Working Group under the leadership of the UN Resident Coordinator's Office.

An increased focus on protection as the centre of the response aims to ensure strengthened leadership, coordination and collective engagement on reducing protection risks and increasing capacities' of the affected population. … The humanitarian response in 2023 will continue to be informed by the findings and recommendations of the Inter-Agency Humanitarian Evaluation of the Yemen Crisis, which was completed in mid-2022. This will include coordinated and concerted efforts across the humanitarian community to strengthen access, analysis, community acceptance, localization, humanitarian-development collaboration and other key areas.

… Yemen is neither in a war of full-scale military offensives, nor does it benefit from a formal peace. During the truce which held from 2 April to 2 October Yemen, conflict related displacement decreased by 76 per cent. At the same time, victims of land mines and explosive remnants of war (ERW), including unexploded ordnance (UXO) increased by 160 per cent. Essential services and the economy continued to deteriorate. The cost of the minimum household expenditures basket rose by over 50 per cent4 in the space of a single year.

In the absence of a comprehensive political settlement, continued displacement, the economic situation, and lack of capacity of state institutions, are likely to remain a key driver of needs. An estimated 4.5 million people—14 per cent of the population—are currently displaced, most of whom have been displaced multiple times over a number of years.
…
An estimated 5.4 million—25 per cent—of the people in need across Yemen are affected by access constraints. Access challenges are most prevalent in northwest Yemen, where they are largely bureaucratic impediments …
…

2.1. Environment Overview

Condensed from **Yemen's Sixth National Report to Convention on Biological Diversity (CBD), Environment Protection Authority (EPA), Ministry of Water and Environment. Republic of Yemen**.

Overview

Yemen terrestrial land hosts a variety of ecosystems and habitats, including mountainous forest, woodlands shrubs, rangelands, arable land, urban systems, inland aquatic systems & dry sandy deserts. As per classification of land use, the largest portion of Yemen terrestrial land is dominated by desert (52.4% of the total land area) with limited use potential. Together with forest and woodlands, rangelands comprise almost 44.5% of the land area, with the remaining 3% being arable land supporting rich crop diversity.

Because of its altitudinal variation & its location at the cross- roads of the African, Asian, and Palearctic ecological zones, Yemen is rich with a wide range of terrestrial, coastal, and marine natural habitats, species and genetic diversity, including many endemic species. These resources are of major economic importance because of their potential for tourism and the wildlife and fisheries they support. Socotra Island is unique in regard to its flora and, like many islands, has a high level of endemism.

Plant populations in Yemen are thought to have declined considerably; agricultural production has undergone dramatic changes due to the expansion of Qat plantations at the expense of other crops. For even representative portions of Yemen's natural biotic wealth to remain for future generations, these alarming trends demand urgent conservation attention.

The flora of Yemen is very rich and heterogeneous with endemism being generally very high among the succulent plants. Forest resources are widely used in industry and construction and medicinal

and aromatic plants play an important role in the lives of most Yemenis who use them as traditional remedies to cure diseases. … Crops such as wheat, lentil and millet are examples of local varieties whose yield and quality are deteriorating as a result of the introduction of homogenous high-yielding varieties.

For a long time, large mammals have been under considerable pressure; some have vanished from the country and most others have become rare and threatened. Yemen also has very rich birdlife (there appears to be a healthy raptor population). Yemen's Coastal & Marine habitats encompass lagoons, sandy & rocky beaches, dunes, mangrove swamps, wetlands, coral reefs and seagrass beds. These habitats are diverse and host a total of 416 species recorded from the Yemeni Red Sea including 401 species of bony fish and 21 species of cartilaginous fishes (rays =5 species, sharks = 16 species). The coral reefs in the country support over 300 species in 60 genera and 14 families of scleractinian stony coral. Coral reefs are highly diverse marine ecosystems that are a habitat for various fish communities in the sea.

Fisheries are considered a promising sector for sustainable development. Fish has already become Yemen's third most important food commodity export, and is also nutritionally significant, contributing to local food security by providing an important source of animal protein. The formerly rich fish resources on the country's continental shelf are now reduced through outtake. Dugongs and several species of dolphins and whales are found in good numbers in several places along the Red Sea.

…

Urban Areas

Urban encroachment is evolving at high rates contributing directly to biodiversity and ecosystems loss, particularly the loss of environmentally sensitive areas and resources such as farm lands, forest and green cover, indigenous flora & fauna, wetlands & coastal habitats, valley beds and banks, wetlands and coastal areas. Yemen urbanization is attributed to multiple policy drivers such as unabated population growth, increased urban immigration, poor land use planning and outdated urban plans. The absence of comprehensive land use plans and human settlement plans has resulted in the growth of informal settlements associated with conversion of agricultural land to residential, commercial and industrial use with anticipated notable threats to the country's food security.

This situation is further aggravated by severe shortages of public services such as road & transportation facilities; electricity services and poor delivery of health and other basic services in primary urban centers. … the increased population in urban cities causes increased domestic water consumption & demands for food, fuel and other natural resources, leading to increased solid & wastewater production and growing air pollution among others. The air pollution is attributed to excessive energy use, industrial activities, transportation and burning of solid wastes. Other wastes are related to water supply, sanitation and liquid and waste management. Records show that wastewater treatment capacity has increased from 132 MCM/yr in 2010 to 135 MCM/yr in 2015. Out of 2010 production only 35% treated while the remaining untreated wastewater discharged to underground aquifer, arable land, marine & in the water courses of Wadies, causing progressive increase contamination of these ecosystems, leading to the reduction in ecosystems productivity and hence the delivery of their services.

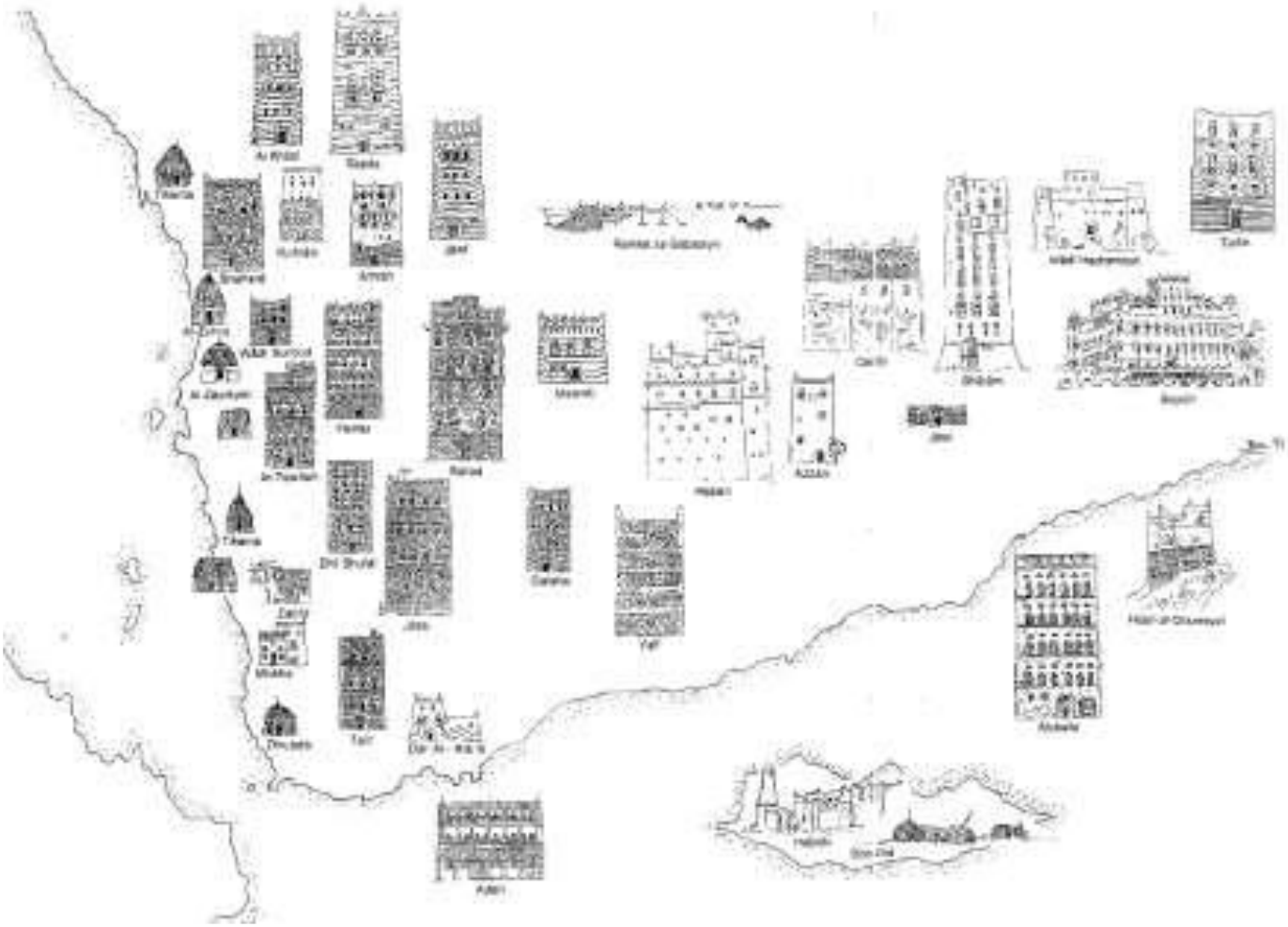
2.2. Shelter, Housing and Settlements Overview

From **Detailed Shelter Response Profile Yemen: Local Building Cultures for Sustainable and Resilient Habitats**.

Most of the housing in urban Yemen is characterized by detached, individual houses. However, apartment housing is on the rise. From 1994 to 2004, the number of entrances found in multi-unit or

collective housing blocks increased from 16.5-26.2% of the urban total23, 24.

The proportion of renting households considerably differs from one town to another. For instance, in Sana'a and Aden, 47.7% and 16.9% of households rent, respectively25. Before the current crisis, the percentage of "huts and shacks" was relatively low (approximately 2.3% in urban areas), but a substantial proportion of urban households lacked urban infrastructure. For instance, in 2004, 26% of urban buildings were not connected to any water supply network. This rate increased to 72% in rural areas25. Today, one of the main consequences of internal people displacement and the housing affordability issue is the mushrooming of squatter settlements and un-serviced peripheral neighbourhoods. This exclusion from formal housing services appears to be a growing concern in Yemen26.



Yemeni houses can be classified into 4 types:

- ✓ *NOMADIC TENT*
- ✓ *REED HOUSE/BRICK HOUSE*
- ✓ *1/2-STOREY HOUSE*
- ✓ *MULTISTOREY HOUSE*

In Yemen, there are buildings under construction, buildings built in recent decades and others 200 years ago. One is not always able to see the difference.

3. Key Actors

3.1. Administrative Offices in Yemen

3.1.1. Aden

- Executive Unit for IDPs, Office of the Prime Minister (IDP ExUnit). Main counterpart for IDP issues. Website: https://www.exuye.org/en/home.
- Minister of Plan and International Cooperation
- Ministry of Public Works and Highways

3.1.2. Sanna

- Supreme Council for the Management and Coordination of Humanitarian Affairs
- Civil Protection Authority
- Environmental Protection Authority and Disaster Management Unit, Ministry of Water and Environment

3.2. Yemen Shelter Cluster[2]

Yemen Shelter Cluster Partners	
Abs Development Organization	Norwegian Refugee Council
Agency for Technical Cooperation and Development	Pure Hands
Al Maroof Development Association	Qatar Red Crescent Society
Altwasul for Human Development	Rawabi AL-Nahdah Developmental Foundation
Alaman Organization for Blind Women Care	Rofqa for Humanitarian Development
Al-hikma Al-yamania Association for Charity	Read Foundation_Yemen
Benevolence Coalition for Humanitarian Relief	Solidarities International
Best Future Foundation	Sustainable Development Foundation
CARE International	Society for Humanitarian Solidarity
Danish Refugee Council	Tamdeen Youth Foundation
DEEM for Development Organization	Together Foundation For Human Development
Diversity Foundation	Yemen AlKhair for Relief and Development
Estijabah Foundation for Humanitarian Aid and Relief	Youth Creativity Organization
Generations Without Qat	Yemen Development Foundation
Human Appeal	Yemen Development Network
International Association for Relief and Development	Yemen Family Care Association
Jeel Albena Association for Humanitarian Development	Yem. Gen. Union of Sociologists, S. Workers and Psychologists
Ma'akum Development Foundation	Yemen Red Crescent Society
Nahda Makers Organization	

3.3. Environmental Sector

There do not appear to be many environment organizations in Yemen. The following organizations were identified through a search for *Yemeni environmental organizations* via EcoHub and Arab.org. Organization summaries are provided when available. Note that some of the organizations may not be currently active.

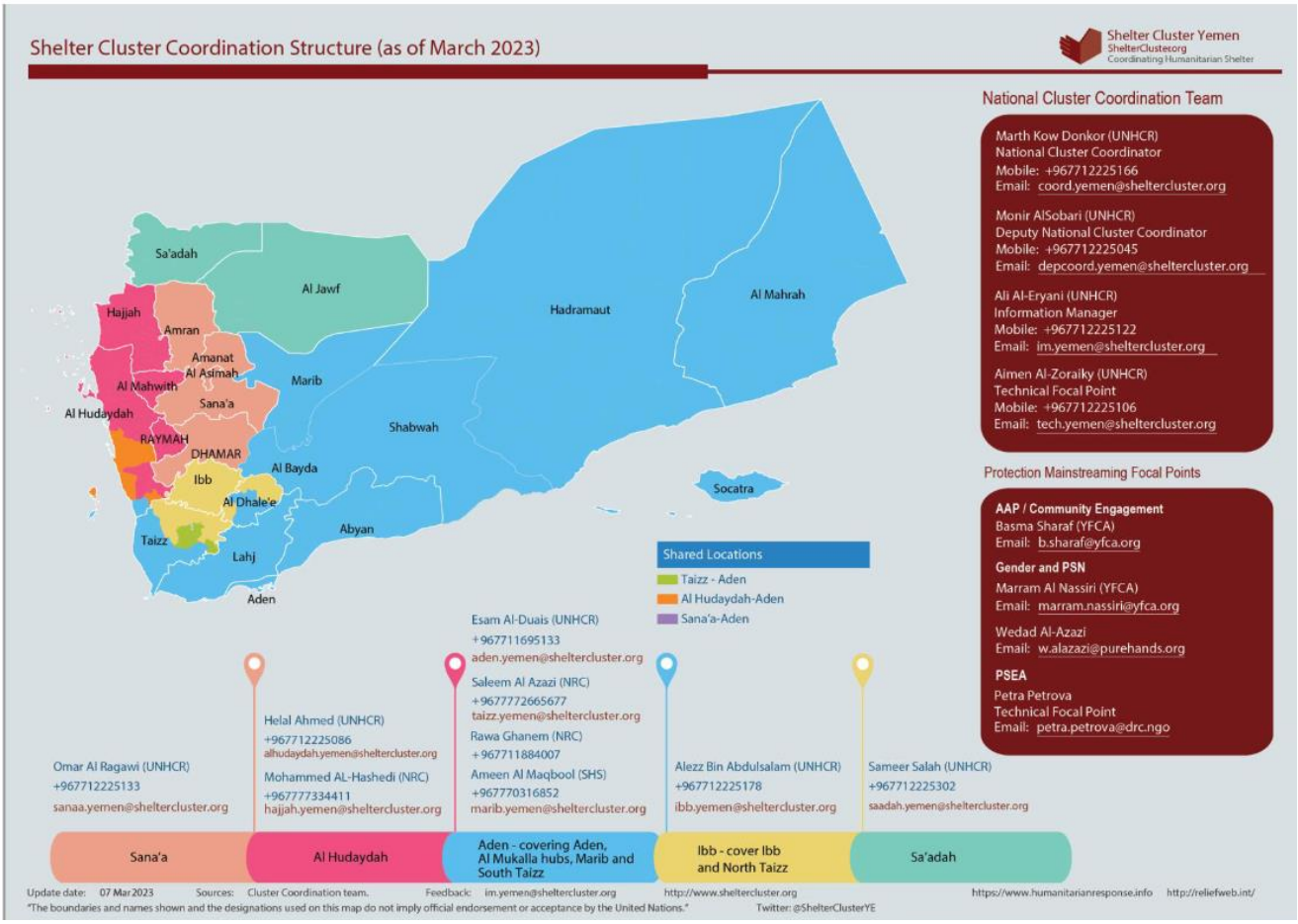
- Foundation for the Protection of the Arabian Leopard in Yemen. *The Foundation for the Protection of the Arabian Leopard in Yemen is a non-profit organization dedicated to ensuring a "sustainably managed wild population of wild Arabian leopards living in harmony with local communities in Yemen."*

[2] The full list of Cluster partners is over 100. These are a list of main operating partners.

- Development Gate Foundation (no details)
- Environmental Protection and Sustainable Development Organization: منظمة حماة البيئة والتنمية المستدامة اليمن environment protectors Organization & sustainable development
- Yemeni Society for Awareness and Environmental Protection
- Yemeni Foundation for Agriculture and Sustainable Development (YFASD) *Yemeni Foundation for Agriculture and Sustainable Development (YFASD) is an independent, non-governmental and non-profit organization established in 2012 in Sana'a by a number of academic experts in all agriculture disciplines. YFASD offers various services, studies and activities with most stringent and highest quality.*
- Organization Beatna (no details).
- Yemen Environment and Sustainable Development Organization – YOESD: *Interested in everything related to the environment and sustainable development issues and develop and find appropriate solutions and programs to preserve the environment in Yemen.*

4. Summary of Shelter/NFI efforts

4.1. Yemen Shelter/NFI Cluster



From **Humanitarian Response Plan Yemen, Humanitarian Programme Cycle 2023**.

Objectives

1. Life-saving emergency shelter and NFI provided to the affected population, including those displaced by conflict, climate emergency, and natural disasters.

2. Ensure the protection and timely assistance of crisis-affected people from climate-related and natural disasters.

3. Enhanced living conditions for IDPs in protracted crises, IDP returnees, and vulnerable host communities by providing durable shelter and NFI solutions,

advancing their security of tenure, and minimizing environmental impact.

Response
The Yemen Shelter Cluster (YSC) target of 3.3 million people includes those newly displaced and in protracted crisis, IDP returnees, and vulnerable host communities. The geographical context and needs severity of the target population guide the response as per the cluster HNO 2023. The YSC has over 220 members implying necessary response capacity and experience to scale up as required. Local NGOs represent over 85 per cent of Shelter Cluster membership and are critical to delivering the response, especially in hard-to-reach locations. The emergency response will deliver NFIs, emergency shelter kits, and shelter maintenance kits for displacements following new shocks and the impact of natural disasters, including fire incidents, aiming to reduce the adverse effects of climate change and other disasters on the affected people. The cluster plans to implement household and community-level disaster risk reduction interventions to ensure IDPs exposed to flooding during the rainy season are protected. Winterization support will be provided to families experiencing harsh weather. Living conditions of the crisis-affected population will improve by providing essential household items, localized emergency shelters, rental support, and shelter maintenance and upgrades, enabling safer and more dignified living standards. Small-scale settlement planning will improve standards, including decongestion, hazard risk reduction, improved accessibility, and ensure access to essential services.

Durable shelter solutions aligning with humanitarian development and peace (HDP) nexus and the Yemen sustainable development cooperation framework, e.g., transitional shelters, house rehabilitation, and reconstruction, aim to enhance the living conditions of IDPs and IDP returnees.
Response modalities include in-kind, cash, voucher, or mixed modality, depending on the context and state of markets. Cash-based interventions, ideally conditional or restricted for shelter purposes, are a favoured modality unless they have a negative impact on communities or if local markets are non-functional. YSC will ensure full representation of the crisis affected population in planning, designing and monitoring shelter and settlement interventions. Promoting people-centered approaches will be prioritized to ensure community safety and dignity, avoid causing harm, and ensure meaningful access, accountability, participation, and empowerment. Protection and Gender mainstreaming as well as PSEA will be considered throughout the designing and implementation of the response. YSC will support recovering housing ownership documents and advancing the security of tenure, addressing HLP issues. Partners will aim to prevent and mitigate adverse environmental impacts by selecting sustainable construction materials to prevent overexploitation, pollution, and degradation of the natural environment. Efforts to strengthen integrated multisectoral responses will continue

Shelter and CCCM Links

Shelter and NFI operations are closely connected with the activities of the Yemen Camp Coordination and Camp Management (CCCM) Cluster. The CCCM web site for Yemen should be consulted for information related to shelter sites in the country. CCCM-compiled information on floods and fires is particularly useful in assessing risks and anticipating shelter and NFI relief needs following these events.

4.2. Suggested Further Actions

- The Yemen Shelter Cluster should incorporate a *green screening* process in evaluating projects included in humanitarian response plans for Yemen (see Annex 22.6).

- The Shelter and CCCM Clusters should form the core of a settlements-focused environment working group to
    - Assure strong coordination on environmentally sound humanitarian response, and,
    - Provide a mechanism for support on NEAT+ assessments. One of the NEAT+ sections covers shelter. However, information for other sections, particularly the sensitivity section, are more likely to be available through CCCM-based engagement in Yemen, making a joint Shelter-CCCM NEAT+ effort efficient.

5. Disaster Risk Management

5.1. Natural and Technological Hazards[3]

5.1.1. Overview

From **Humanitarian Needs Overview, Yemen Humanitarian Programme Cycle 2023**

The risk of natural hazards in 2023 remains high, with the trends of recent years likely to continue and expected to increase in frequency and severity. In particular, severe floods and droughts have led to the destruction of shelters and infrastructure, restricted access to markets and basic services, and displaced populations already weakened by years of conflict and economic instability. In southern parts of the country, the cyclone season—from May to June and October to November—brings heavy rainfalls, high winds and flooding to coastal areas.

The monsoon season—from July to September—in northern and central parts of Yemen has been the main cause of flash floods, especially in periods following prolonged drought. In the absence of adequate water drainage structures, especially in semi-urban settings, displaced people are most at risk and flooding is a leading cause of secondary and tertiary displacement.

In 2023, the impact of natural and environmental hazards, in combination with continuing or escalating conflict and a deteriorating economy, is expected to increase vulnerabilities and humanitarian needs. In the areas impacted by natural hazards, vulnerable population groups, such as women, children and displaced people, will contend with food insecurity, increased health risks and acute malnutrition.

The already dire humanitarian situation in 2022 will likely be exacerbated by further severe drought conditions in 2023. Yemen has the lowest water per capita availability globally, with scarcity partly due to dry weather conditions. This challenge has been exacerbated by climate change in recent years, as well as rapid population growth and expansion of groundwater use for agriculture. The result is that groundwater is now being depleted far quicker than it can be replenished due to erratic precipitation patterns. Climate change also negatively impacts WASH services as some people migrate due to quality of water. Since 90 per cent of water resources are used for agricultural activities in Yemen, the reduction of available water resources may have wide-ranging negative impacts for these activities and living standards more broadly.

Yemen is affected by seasonal sand and dust storms. These storms can damage structures, and their occurrence can be associated with degraded environmental conditions. See the **Global Assessment of Sand and Dust Storms** and the **SDS Compendium** for additional details and information on management options.

See Detailed Shelter Response Profile Yemen: Local Building Cultures for Sustainable and Resilient Habitats for additional details on hazards.

[3] Although explosive remnants of war as reported to be a hazard in Yemen, they are not covered in the **Profile** at this point. Their presence is, however, covered in the site selection process used by the Shelter and other Clusters.

The Yemeni Civil Aviation and Meteorology Authority, Ministry of Agriculture and Irrigation and the FAO Global Information Early Warning System (GIEWS) produce a monthly *Yemen: Agrometeorological Update* which covers precipitation, vegetation development, locusts, dust. The monthly reports also cover hazard events (e.g., flooding, landslides) reported in the previous month.[4]

5.1.2. Hazard Mapping

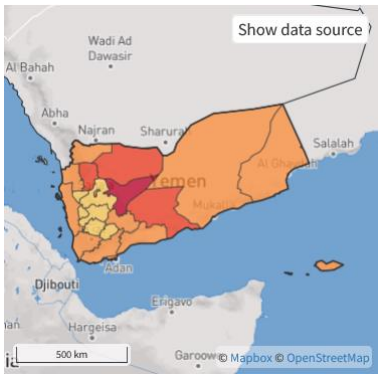
An overview of significant natural hazards in Yemen using data from Think Hazard is captured in the following table. The Think Hazard site provides more details on each hazard.

The last reported volcanic eruption in Yemen was in 2007/8 on Jabal al-Tair island at the mouth of the Red Sea. More information on volcanos in Yemen can be found at https://volcano.si.edu/volcanolist_countries.cfm?country=Yemen. Flooding, winter weather and extreme heat are discussed further below.

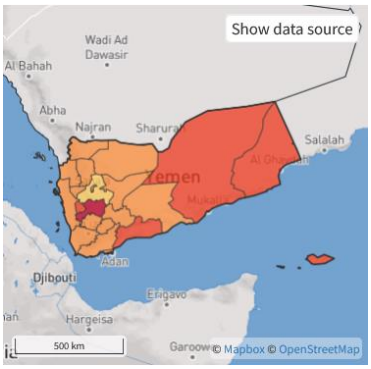
[4] The Update does not appear to be available on a web page, but can be requested from the FAO Representation Yemen, Sana'a (YE-FSNIS@fao.org), Assistant Deputy Chairman, CAMA/YMS, Eng. Mohammed Saeed Hamid (hamid77737@gmail.com) or Director General Ministry of Agriculture, Irrigation Department, Eng. Iskander Thabit Abdullah (iskander.thabet@gmail.com).

Mapping Significant Hazards in Yemen

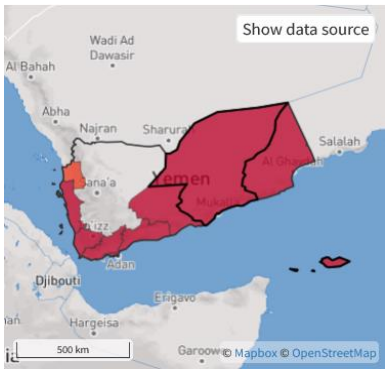
River Flood



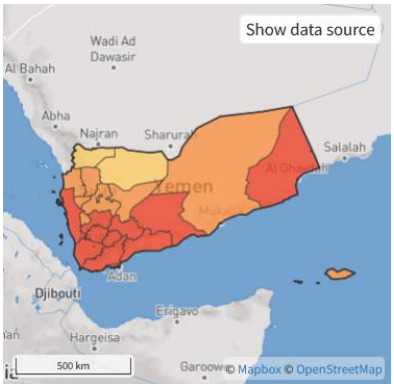
Urban Flood



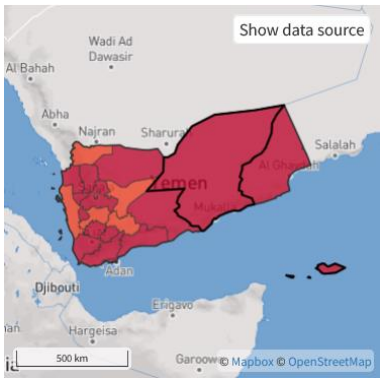
Coastal Flood



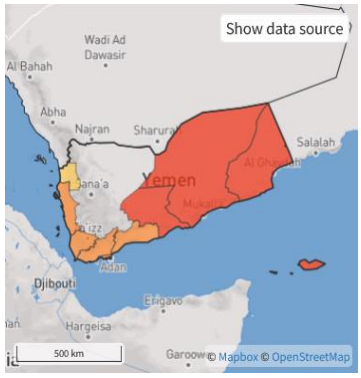
Earthquake



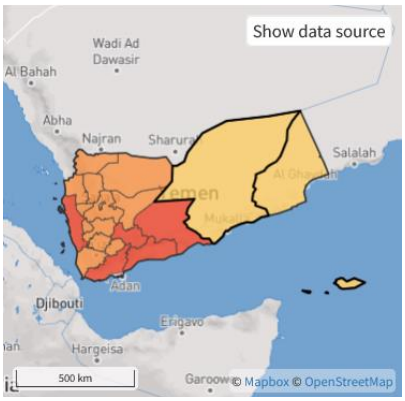
Landslide



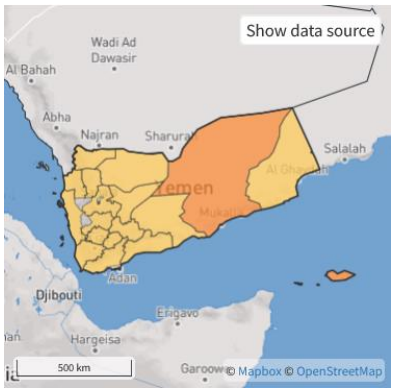
Tsunami



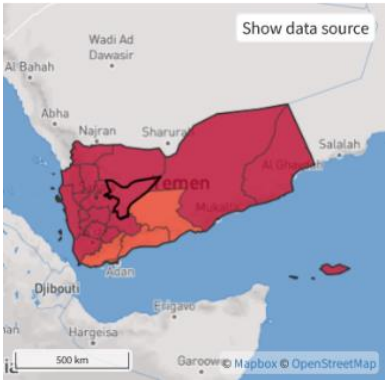
Volcano



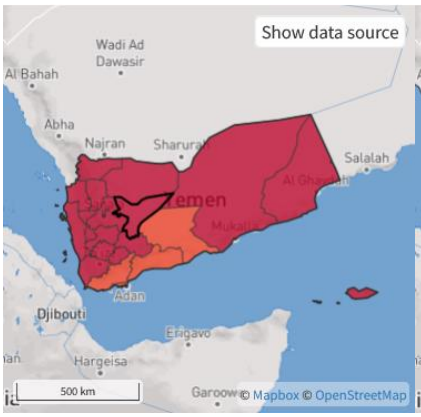
Cyclone



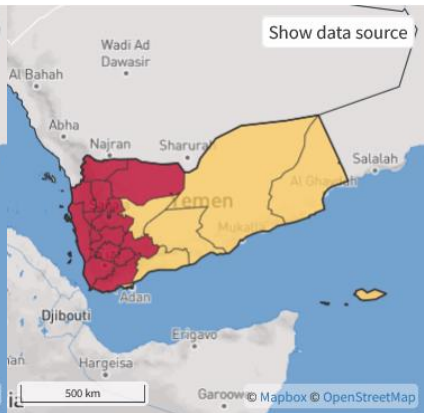
Water Scarcity



Extreme Heat



Wildfire



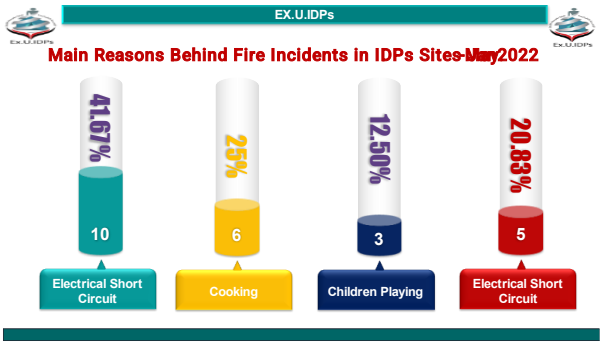
Rating Scale: High Medium Low Very low

Additional information on climate-related natural hazards can be found in

- Yemen: Country Level Climate Fact Sheet,
- Climate Risk and Adaptation Country Profile April 2011, and
- Climate Change Risk Profile Yemen.

5.1.3. Structural Fire in IDP Sites

There is a specific problem with fires in IDP sites. Conditions which exacerbate fire events include seasonal winds, built-out shelters[5] and lack of knowledge of safe energy use. The risk from fire is exacerbated by limited fire service capacities and the distance which can exist between fire stations and fire locations.



Data from the IDP ExUnit (see figure at left) indicates that, from January to June 2022, 24 fires in IDP sites were reported, resulting in 13 causalities and a loss of 136 shelter units as well as possessions. According to the IDP ExUnit date, forty two percent of the fires were due to electrical shorts, twenty five percent due to cooking, thirteen percent due to children playing and five percent with unknown causes. Data from the CCCM Clusters for 2021 and 2022 indicates 37% of fires were due to electrical connections and 21% due to cooking.

These numbers indicate that fire is not just associated with cooking. An important issue in reducing fire risk is the cause of fires. Data from the IDP ExUnit for the first half of 2023 indicates that 42% of fires were due to electrical connections (see figure to the left). This suggests that focusing fire prevention only on cooking may miss a significant cause of fires.

Fire Safety Guidelines exist (see Annex 22.1). A Fire Safety Working Group was established in mid-2022 to understand the causes of fires and measures which can be used to reduce this hazard. The Working Group is composed of representatives from OCHA, Executive Unit for IDP Camp Management and the Shelter/NFI, CCCM and Protection Clusters.

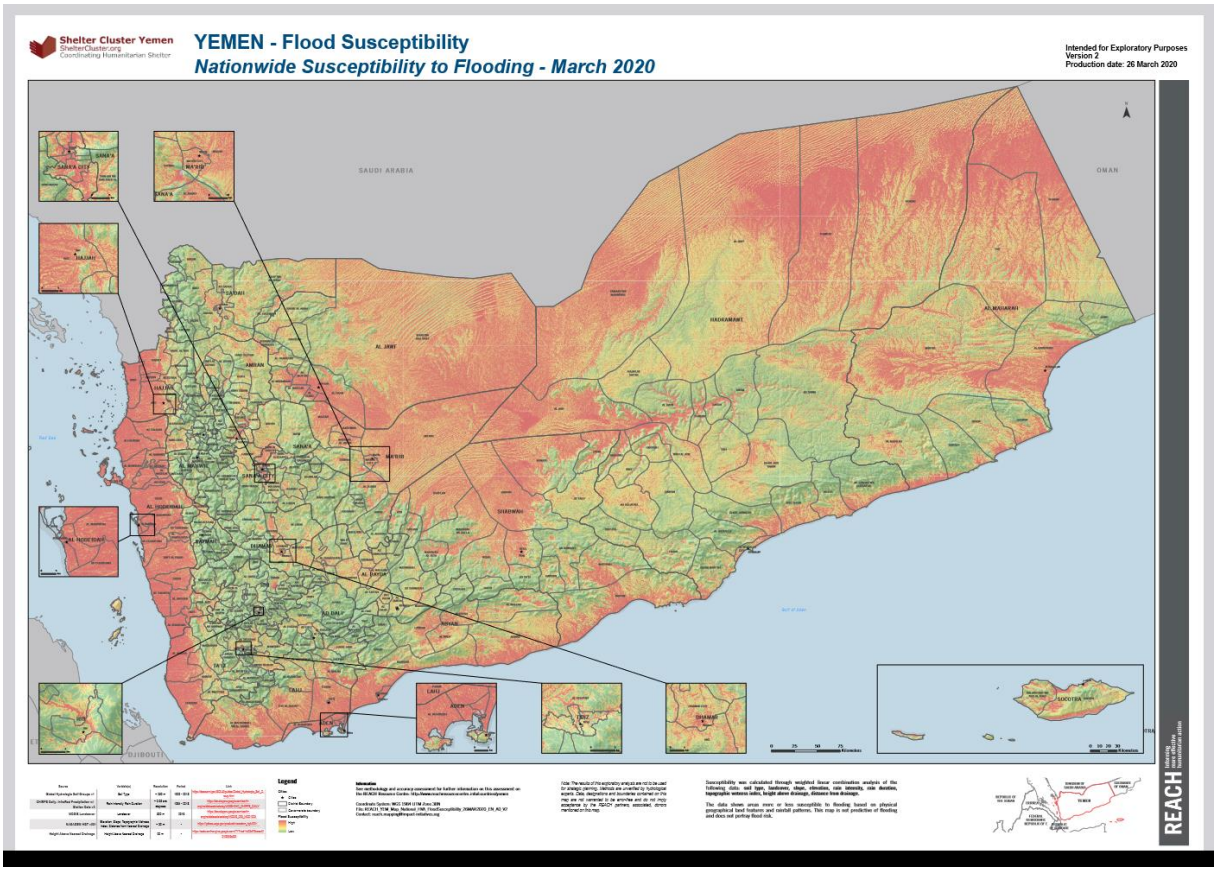
5.1.4. Flooding

*F*rom **Humanitarian Needs Overview, Yemen Humanitarian Programme Cycle 2023**: *In the recent past, the country has experienced an increasing severity and frequency of floods, which have repeatedly resulted in human casualties, displacement and major economic damage. The aftermath of flooding is known to significantly increase the risk of waterborne disease and malaria, putting the health of the most vulnerable people at risk. In 2022, flash flooding was particularly felt in Hajjah, Al Jawf, Al Hodeidah, Amran, Marib and Sana'a governorates, and in Sana'a City. Based on a trend analysis of recent years, it is estimated that up to 500,000 additional civilians will be displaced by floods in 2023. With rains and floods, ERW and landmines also pose an increased threat to civilians.*

From **Yemen Shelter Cluster DRAFT - Flood Preparedness and Response Plan 2023**: *Shelter Cluster analysis shows that over 61 districts are exposed to severe flooding. CCCM Cluster warned of floods threatening one-quarter of the IDP sites in the country that need urgent mitigation measures or relocation.*

[5] Shelters where the occupants have expanded the shelter space by adding walls, roofs or similar means to further enclose the shelter space.

A [map of flood-vulnerable areas](), developed by REACH, is provided below.[6]



The objective of the Shelter Cluster **Flood Preparedness and Response Plan 2023** is to ensure *an effective, timely, and coordinated response that will mitigate the risks and reduce the impact of the disaster on the communities in coordination and complementary from other clusters/sectors (italicized text from the original).* A plan to transition from humanitarian operations to recovery is expected. The response plan does not include risk reduction measures.

A Anticipatory Action approach to flooding is being piloted by OCHA (see Annex 22.3). This approach to flood management has a good base in assessment and warning. However, the approach does not include risk reduction, meaning that flood losses will continue even as warnings reduce a loss of life. As a result, the conflict-focused humanitarian response will likely be engaged in providing new shelter and non-food items to replace those lost through flooding.

The Shelter Cluster is considering implementing flood risk reduction activities in a number of IDP sites. This effort will use a limited scope, community-based approach to flood reduction. The project is slated to start in latter 2023.

[6] Additional maps and information on flooding is available from REACT at https://www.reachresourcecentre.info/country/yemen/theme/humanitarian-situation-monitoring/cycle/1304/#cycle-1304.

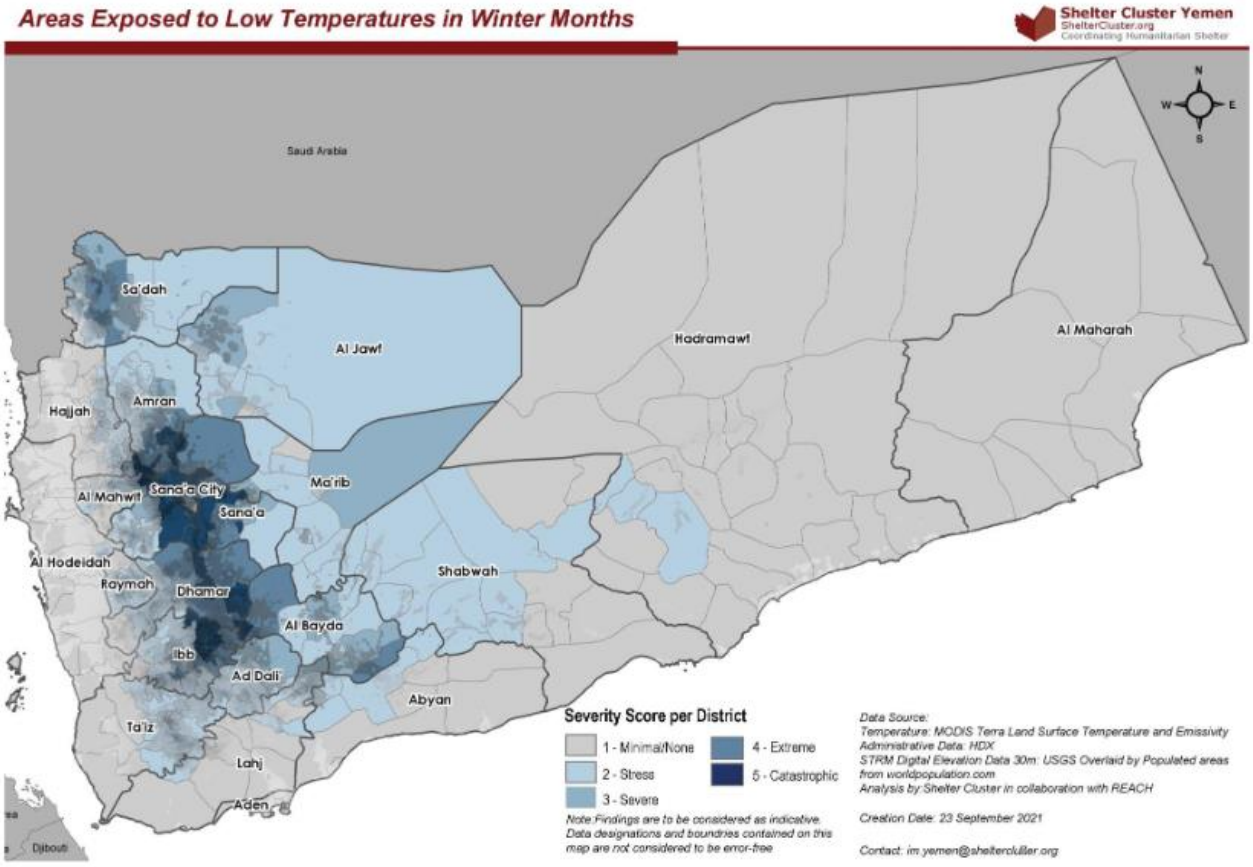
5.1.5. Winter Weather

The Yemen highlands can experience cold weather in winter which has a significant impact on IDPs lacking adequate shelter, clothing and means of heating. The map below provides information on areas most severely impacted.

A winterization program for 2023-2024 has not been completed at the time of **Profile** development. Information in **Winterization Programme Advocacy Note October 2022 – February 2023** and a more detailed description in **Yemen Winterization Strategy October 2021 – February 2022**, provided a window on annual efforts to address winter weather.[7]

The basic winterization approach is to provide clothing to maintain personal heat and shelter materials to improve heat retention in buildings. The 2021-2022 strategy noted above provides details on types of assistance and selecting who should receive assistance.

The winterization approach does not include providing fuel or stoves. The 2021-2022 strategy does note possible negative impacts from *firewood collection or using waste materials like plastic bags and bottles as heating fuel*.



Additional information from REACH on flooding and winter weather hazards in Yemen is provided in the box below.

[7] At the time the Profile was being developed, a winterization plan for 2023-2024 was in development.

Hazard Information Available from REACH

(Provided by REACH Yemen)

Flood susceptibility & hazard assessments (2020-2023)

Flood Susceptibility Analysis (2020)

- Methodology Note
- National Map
- Regional Maps

National IDP Site Flood Hazard Analysis (2022 & 2023)

- Methodology Note (2023)
- Dataset (2023)
- Presentation (2023)
- IDP Site Flood Hazard Scores (2023) (National map)
- Historical Flood Events in IDP sites (2021-2022) (National map)
- Regional Flood Hazard maps for Marib, Hajjah, Taiz & Al Hodeidah (2022-2023)

Localized Abs City & IDP Site Flood Hazard Mapping (2022 & 2023)

- Abs City & IDP Hosting Site Flood Hazard Analysis report (September 2022)

Winter & Summer Weatherization Analyses (2017 & 2019)

- Regional Maps (2017)
- Regional Maps (2019)
- **Rainy season monitoring** (2017)

REACH's publicly available outputs can be found on the REACH Yemen Resource Centre.

5.2. Extreme Heat

As indicated in the ThinkHazard analysis, most of Yemen can be subject to extreme heat. Average temperatures are expected to increase (see Section 5.4, below), although data on extraordinary heat events (periods when temperature are significantly above averages) is not available.

However, urbanization, as a result of displacements and normal population growth, can be expected to concentrate people in locations which are hotter than, and do not cool as much at night as, surrounding rural areas. This can be anticipated to increase heat stress and be a particular threat for people with underlying health problems.

The Shelter Cluster has experimented with shelter styles which are cooler when compared to standard plastic sheet construction. However, it appears that these cooler designs (usually involving insulation below the roof and upper walls made of grass mats which allow breezes to pass) are less preferred by occupants because of privacy concerns. However, replacing these upper walls with plastic, plywood or reused tents, contributes to internal heat retention. However, given the health impacts of extreme temperatures, cooler shelters would seem to be an imperative. (Also, see Section 15.)

5.3. FSPO Safer

The FSO Safer, an off-shore oil storage vessels, is not directly linked to humanitarian shelter operations. However, the release of oil from the vessel could have a significant impact on IDP livelihoods and lead to migrations. As well, negotiations over how to reduce the risks posed by FSO Safer can impact the scale and scope of shelter assistance.

In August 2023, an effort led by UNDP resulted in an offloading of approximately 1 million barrels of oil from FSO Safer. This significantly reduced the risk of a release of oil. Work continues at cleaning out the remaining waste oil and contaminants from the FSO Safer at the time the **Profile** was drafted.

5.3.1. Suggested Further Action

- Cluster partners should work to include funding for flood response into projects providing assistance to conflict IDPs to avoid reducing assistance to conflict-affected when a flood response is needed.
- The Shelter Cluster should review whether providing fuel and stoves as part of winter assistance is justified. The stoves will have recurrent future use, while fuel efficient units will likely have a reduced negative impact on the environment.
- Shelter Cluster should continue past efforts to develop shelter designs which are cooler during high temperatures but also meet occupant concerns about security and privacy.
- The Shelter Cluster should consider how to integrate risk reduction into shelter and settlements assistance to reduce a recurrent need to replace flood-affected shelters and NFIs.
- The humanitarian community in Yemen should develop a disaster risk management plan incorporating the hazards listed above. In terms of the work to date on structural fire, the Shelter Cluster and partners should consider consulting with Kindling on broadening approaches to fire safety.

5.4. Climate Change Overview

From Yemen between the Impact of the Climate Change and the Ongoing Saudi-Yemen War: A Real Tragedy

Climate changes since the 1960s include:

- *Increased temperature (1.8°C+) at a rate of approximately 0.39°C per decade, with most rapid rate of increase occurring during the summer months (June-August); rate of warming is more rapid than the global average.*
- *Decrease in average rainfall at a rate of 1.2mm per month (-9%) per decade, generally affecting the drier seasons, with declines particularly noted in the Highlands.*

Projected Changes might include:

- *Mean annual temperature increasing by 1.2°C to 3.3°C by 2060, with warming occurring more rapidly in the country's interior than in the coastal areas.*
- *Substantial increase in frequency of hot days and nights (exceeding temperature of hottest 10% historical days/nights); decrease in frequency of cold days and nights.*
- *Wide range of projections (increases and decreases) for rainfall, with probable increases in September-November rainfall.*
- *Proportion of total rain falling in heavy events occurring September-November is expected to increase.*
- *Amounts of rain in maximum 1- and 5-day events occurring September-November are expected to increase. Increase in sea level rise of 0.30 m to 0.54 m by 2100.*

Additional information and analysis can be found in:

- Yemen Socio-Economic Update: Climate Changes and Related Impact on Agriculture and Food Security in Yemen, Issue (74) July-2022, Ministry of Planning & international Cooperation Economic Studies & Forecasting.[8]
- Yemen: Country Level Climate Fact Sheet, Red Cross/Red Crescent Climate Center.
- Climate Change Risk Profile Yemen, Global Environmental Management Support Project USAID.

5.5. Disaster History

Reported Disasters – Yemen – 1900 t0 2023			
Disaster	**Number**	**Disaster**	**Number**
Flood, of various types	47	Earthquakes	3

[8] Contacts for the report, Mr. Kamal S. Al-Kharmeri, kamal.alkhameri@gmail.com or UNICEF Yemen.

A table of disasters reported for Yemen from 1900 to mid-2023 from the CRED EMDAT data base is provided to the right. The data set on which the table is based can be found in Annex 22.2, including additional details on lives affected and costs.

Note that this list is based on disasters reported through news media, the Government or the humanitarian community. Local disasters may be more numerous, in number, and more damaging to affected populations.

Transport Accidents (Water, Air, Road)	33	Landslides	3
Epidemics	8	Industrial Accidents	3
Storms, including Tropical Storms	6	Insect Infestations	2
Fires and Explosions	6	Collapsed Buildings	2
Droughts	4	Volcanic Ash	1

5.6. Disaster Management System in Yemen

In the areas of the Internationally Recognized Government, disaster risks are managed under the direction of a Supreme National Emergency Committee (SNEC), chaired Chairman of the Presidential Leadership Council. The SNEC coordinates the overall government response to disaster risk reduction, warning and response.

The operational arm of the SNEC for disaster response is the Civil Protection Authority (CPA). The CPA primarily focuses on flood and fire response but is generally called on for any type of rescue operation. SNEC has personnel in most IRG-controlled governorates and a larger contingent of personnel and equipment in Aden. The SNEC has a national disaster management strategy (needing updating), and response plans for some types of disasters.

IDP issues are coordinated by the Executive Unit for IDP Camp Management (IDP ExUnit) Office of the Prime Minister. The IDP EXUnit has staff in governorates and can be directly involved in site selection, development and management activities.

Yemen has been engaged with the Sendai Framework for Disaster Risk Reduction. The Framework focal point is the Ministry of Water and Environment. Yemen's mid-term report identified a need for the following actions:

✓Establish the National Mechanism for Disaster Risk Management, a national team for disaster risk management, with the participation of the competent authorities and stakeholders.

✓Equip the technical secretariat of the national mechanism (at the Ministry of Water and Environment - the national focal point for the Sendai Framework for Disaster Risk Reduction).

✓Launch local training programmes on collecting and calculating historical national disaster losses using the DesInventar information system, monitor the Sendai Framework and report on global targets.

✓Support the development of a national strategy and local strategies for disaster risk reduction in 8 Yemeni governorates (in line with the Sendai Framework 2015-2030 and the Arab Strategy for Disaster Risk Reduction in accordance with target (E) of the Sendai Framework.

✓Build national capacities and develop national and local forums for disaster risk reduction on an ongoing basis for multilateral consultations, including stakeholders and other groups.

✓Carry out awareness and education programmes on natural disaster risk reduction, observance of the International Day for Disaster Risk Reduction and launch of the National Platform for Disaster Risk Reduction on the Internet.

✓Carrying out a disaster resilience assessment to track disaster areas, and identify potential opportunities to avoid new disasters.

✓*In addition to supporting the establishment of multi-hazard early warning systems that have proven their importance and feasibility in reducing losses caused by disasters.*

(From letter to the United Nations Office for Disaster Risk Reduction.)

In the areas of de facto administration, disaster risk is managed under the authority of a Supreme Emergency Committee. Disaster response (including earning and preparedness) is coordinated by the Civil Defense Authority (CDA), based in Sana'a. One of the key tasks of the DCA is managing a flood warning system for Sana'a. They have staff and resources at the governate level. Disaster risk reduction is managed through the Disaster Management Unit of the Department of Water and Environment.

The Supreme Council for the Management and Coordination of Humanitarian Affairs (SCMCHA) is the coordinating body for humanitarian assistance and for IDP issues in de facto administration. The Council has staff at the governate level.

5.7. Humanitarian Crisis

In addition to Sections 2.1 and 4.1, above, see the following:

- Humanitarian Response Plan Yemen, Humanitarian Programme Cycle 2023.
- Yemen Humanitarian Needs Overview 2023
- International Crisis Group – Yemen.

6. Environmental Regulatory Requirements and Institutions

(Italicized text extracted from Yemen EIA Profile. See the Yemen EIA Profile for additional information.)

6.1. Lead Government Party

Environmental Protection Authority (EPA), Ministry of Water and Environment.

(Note: same titles in the IRG and de facto administered areas,)

6.2. Governing Laws and Regulations

Environment Protection Law (EPL) No (26).1995.

(Reported to be in force in both IRG and de facto administered areas, but not consistently applied.)

In 1996, an EIA operational regulations (sic) have been developed in the for of an EIA policy (sic). The policy was adopted by the Environmental Protection Council (EPC), but not the Parliament or the Cabinet. As the EPC does not have the legal mandate of enforcing it, EIA remained a voluntary tool.

6.3. Environmental Review Procedures

6.3.1. Environmental Review Submission and Approval

Overview ESIA procedure

The EIA procedure in Yemen starts with screening. Scoping is recommended, but not mandatory. Thereafter, the assessment, review, consent decision-making process and compliance monitoring are the main steps of the EIA procedure.

Major documents resulting from the EIA process are the following: Scoping report incl. Terms of Reference (voluntary), EIS incl. Monitoring plan.

Screening process

EPA makes the screening decision, in consultation with the competent authority of the project. The decision on the screening lists themselves (i.e. standards,

criteria, specifications) are formulated and approved by the Cabinet.
Screening is based on contents of EIA by-law which clearly states:

- *which areas are considered of high value, requiring a (preliminary) EIA for any activity in that area;*
- *which activities are considered potentially harmful to the environment and therefore requiring and EIA;*
- *below what capacity or size the requirement for an EIA for any particular activity can be dispensed with. EIA should also be obligatory for existing facilities with plans for major expansions (e.g. 25% of capacity), if a new facility of this kind would be eligible for EIA.*

Sensitive areas There are specific requirement formulated for protected areas. The EPL provides for the formulation of a list of special environmentally sensitive areas and locations by the cabinet. Projects with likely effects to such areas as historical and archaeological places, wetlands, coral islands, natural protected areas, and public parks require full EIA.

Integration of ESIA into decision-making
The competent agencies that give permits are co-operating agencies in EIA and, in this way; EIA is integrated into other existing consent procedures. The licensing Agency gives the final permission for the proposal.

The EPA in conjunction with other relevant government ministry or authority decides if, or under what conditions, the proposed activity is environmentally acceptable. Accordingly the MoWE issue clearance letter which may include conditions and mitigating measures (changes in design or location), to monitoring requirements or to requirements for operation and maintenance.

Exemptions from application
Competent authority may make exemptions from EIA, if the objective of the activity is to protect human lives or to ensure the safety of the establishment or the working area, or because of an accident. This however is on condition that the responsible person has taken all measures to remedy the defect.

Additionally, the EIA policy states that some international donor projects are exempted from (Yemeni) EIA, because they already undertake their own EIA procedure (UNDP and World Bank). This exemption should however not be regarded as 'free or automatic' but should be based upon information about the environmental assessment carried out by the donor. A condition for this approach is that the EPA evaluates and approves the procedure, and that the EPA receives a copy of all EIA files.

6.4. Suggested Further Action

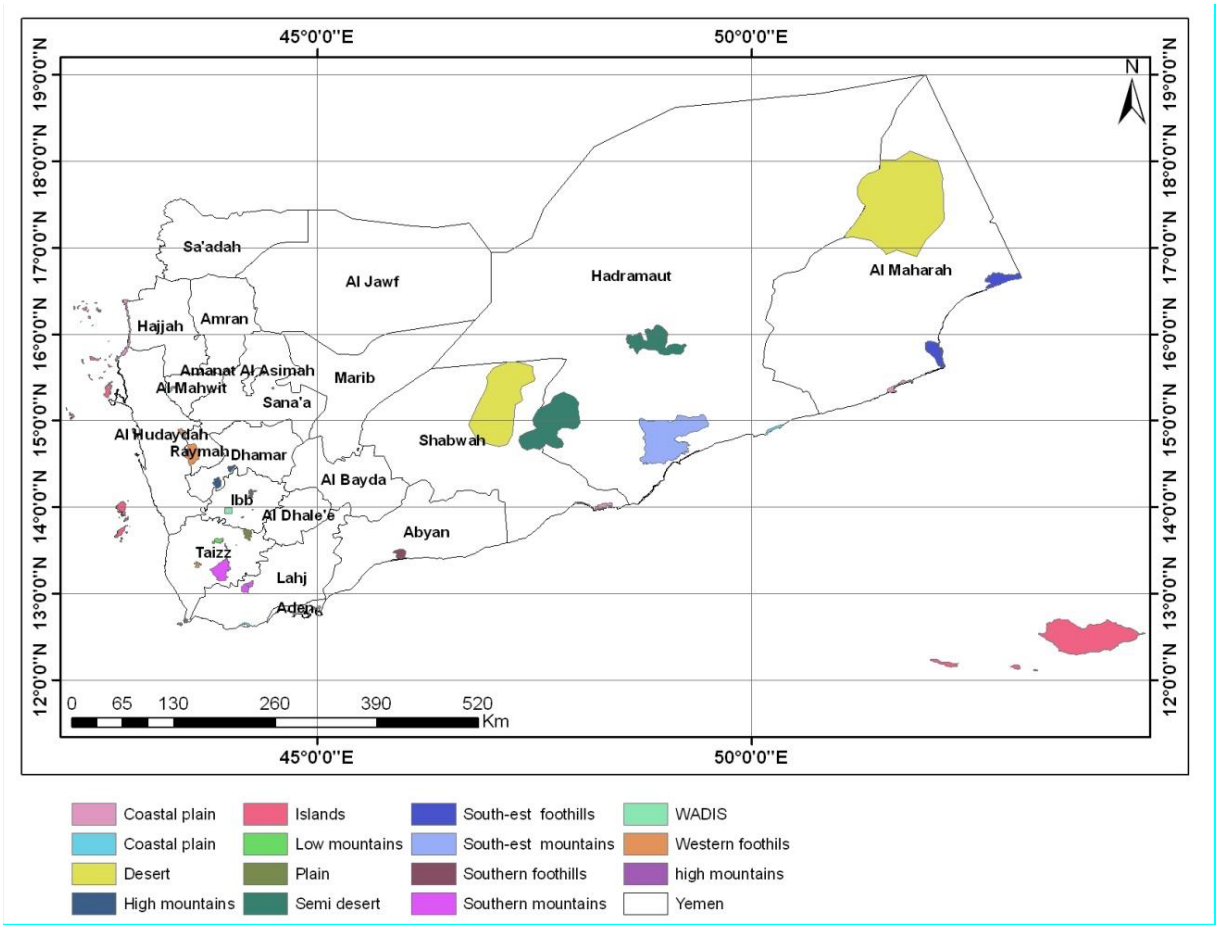
- Ascertain from the Environmental Protection Agency whether any shelter or settlement activities would require environmental reviews, either under Yemeni procedures or by organizations under the "Exemptions" text above.

Note that environmental reviews are required under the Sphere Standards as well as by some donors. Also see Sections 8 and 9, below.

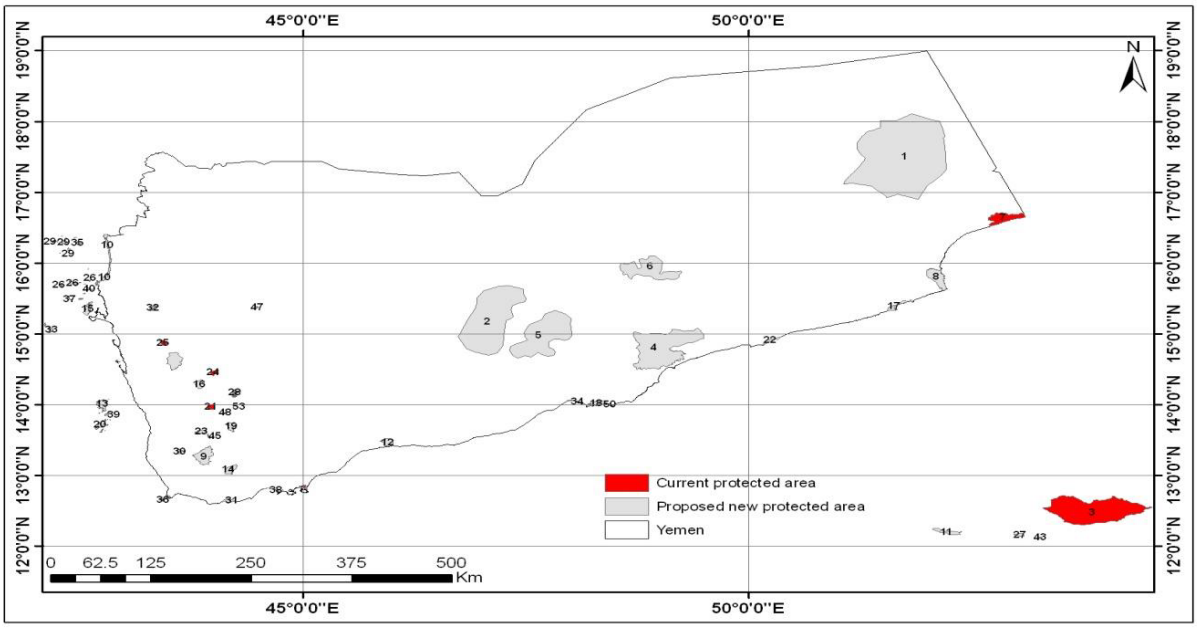
7. Ecologically Protected and Sensitive Areas

7.1. Maps

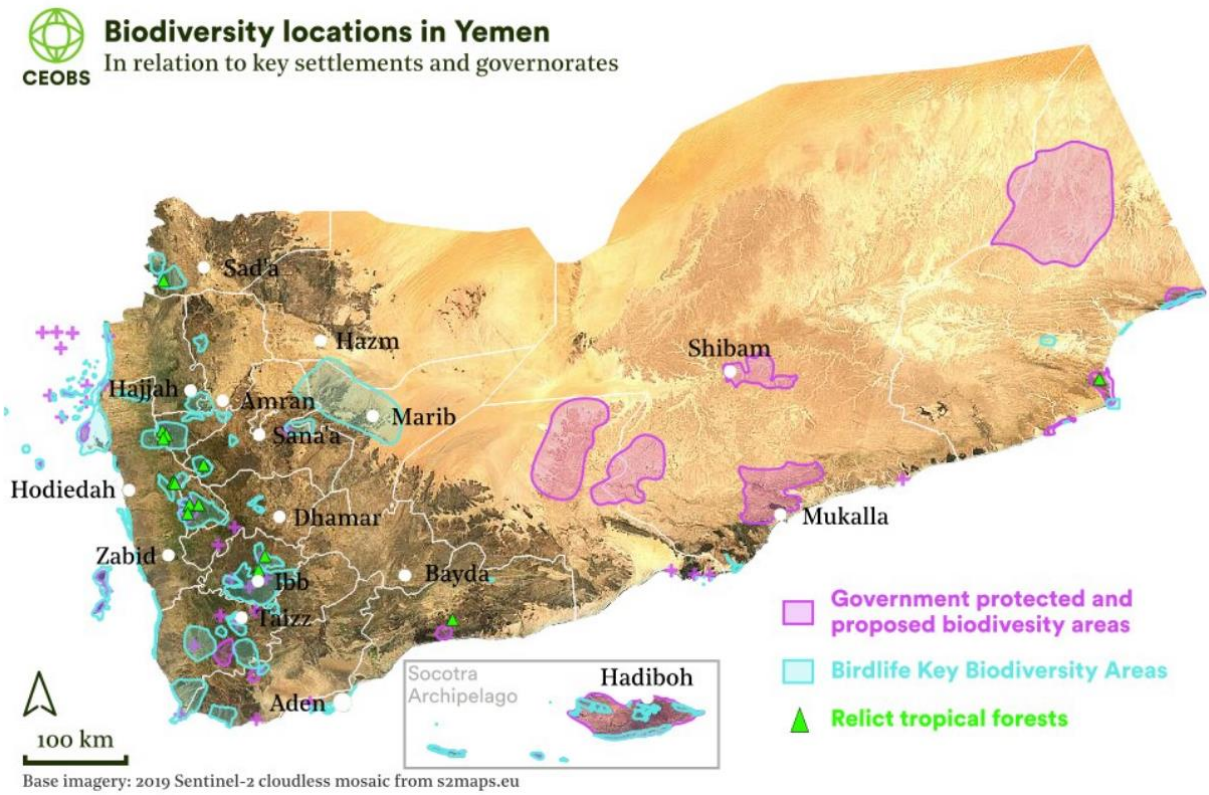
Ecosystem and Current and Proposed Protected Areas maps from the Fifth National Report to the Convention on Biological Diversity (2010-2014), Environment Protection Authority, Ministry of Water and Environment, Republic of Yemen. Although locations are numbered in the maps, names of locations were not provided in the source document.



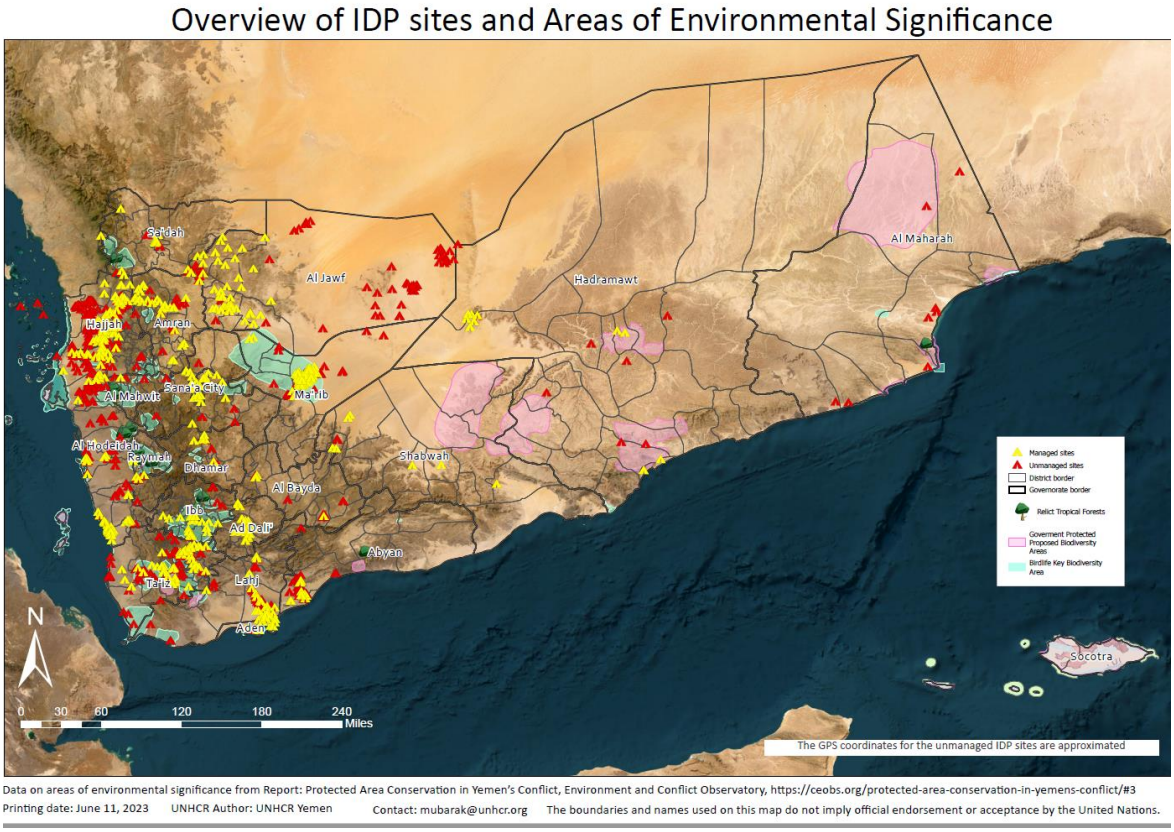
Ecosystems of Key Biodiversity



Current and Proposed Protected Areas



Source: [Report: Protected area conservation in Yemen's conflict](#).



A list of reported protected areas can be found in Annex 22.4. Additional information on protected areas and the impact of the conflict can be found in [Report: Protected area conservation in Yemen's conflict](#).

7.2. Deforestation

Reports indicate that deforestation is ongoing and exacerbated by the conflict.[9] However, published research and data on deforestation suggested no such impact.[10]

7.3. Suggested Further Action

- Operational research should be used to assess the demand for wood for fuel and shelter construction and contribute to planning nature-based solutions to this threat to the environment (see Section 21).
- The **Overview of IDP Sites and Areas of Environmental Significance** map should be updated with more accurate information on parks, preserves and protected areas (see Annex 22.4) and plans made to minimize negative environmental impacts where they coincide or are adjacent.[11] "Protected areas" should include locations designated by neighboring or adjacent communities as places which should be protected.

8. Environmental Impact Assessment

8.1. Rapid Assessment Process and Report

An online Rapid Environmental Impact Assessment (REA) was conducted by the Yemen Shelter Cluster in late 2022. Details of the assessment can be found in Annex 22.5.

The initial results of the REA are provided below. The **Score** column indicates the number of times across the individual surveys that a topic was indicated as most important. Also provided are the results of gender-related questions. The REA results feed into the Environment Management & Monitoring Plans, described in Section 9, below.

Yemen Online REA Issues Ranking		
Topic	**Criteria**	**Score**
Need for water is being met	Lesser part of needs being met	30
Basic need for food is being met	Lesser part of needs being met	30
Basic need for shelter is being met	Lesser part of needs being met	25
Self-sufficiency	Low, that is heavily reliant on the natural environment, humanitarian assistance and other sources.	29
Hazard	Floods	28
Basic need for energy being met	Lesser part of needs being met	27
Basic need for personal safety is being met	Lesser part of needs being met	27
Social solidarity	Not strong or weak, that is there are connections, but they are not strong or well established.	27
Current livelihood options	There are few to no options, that is, households have limited or no means to meet needs and are heavily reliant on assistance and accessing natural resources.	27
Basic need for health care is being met	Lesser part of needs being met	26
Basic needs for livelihoods is being met	Lesser part of needs being met	26

[9] See https://reliefweb.int/report/yemen/yemen-s-climate-crisis-threatening-lives-livelihoods-and-culture and https://widerimage.reuters.com/story/we-are-scared-the-country-will-become-a-desert-yemens-forests-are-next-casualty-of-war.
[10] See https://rainforests.mongabay.com/deforestation/2000/Yemen.htm.
[11] "Adjacent" should be defined locally as the distance within which IDPs could travel to access natural resources in parks or other protected locations.

Expectations	High the affected population expect most of their needs to be met from external assistance.	24
Ability to safely manage waste	Poor, that is, waste is poorly managed and causes negative environmental impacts.	24
Hazard	Fire in camps	24
Concentration	Low, that is households are more than 10 meters from each other.	22
Basic need for domestic resources is being met	Lesser part of needs being met	22
Basic need for transport being met	Lesser part of needs being met	22
Availability of natural resources	Poor, that is, damage is occurring to the natural environment.	20
Number affected by the disaster or crisis	Hundreds to thousands	19
Hazard	High winds	18
Hazard	Disease affecting people	18
Hazard	Sand and dust storms	16
Distance affected population have moved	They are far from their point of origin, that is to say more than one day travel by car from their point of origin.	16
Hazard	Drought	13
Hazard	Disease affecting animals	12
Hazard	Snow/Winter Weather	11
Hazard	Pest affecting crops, e.g., locusts, Army Worms, etc.	10
Hazard	Other	10
Hazard	Pollution from industrial sources	8
Hazard	Landslides and similar events	7
Hazard	Earthquakes	2
Hazard	Wildfire outside camps, e.g., affecting crops	1

Environmental Issues and Gender

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 the 31 responses 18 indicated that harm could occur “In some cases” while 13 indicated that harm could occur “In most cases”.

In terms of who could be most at risk of harm, the 31 respondents indicated the following: Women: (30 respondents), Girls: 30 (respondents), Boys: 27 (respondents), Men: 13 (respondents).

8.2. Suggested Further Action

- The online REA should update annually to provide strategic input into planning by the Cluster and as part of the HNO/HRP process.
- The Cluster should implement NEAT+ assessments for a representative selection of IDP sites in cooperation with the CCCM Cluster and use this incorporate this information into adjustments to operations, plans and project designs.
- Different levels of possible harm to women, girls, boys and men related to shelter and settlement activities should be research further and mitigation and reduction measures implemented where appropriate.

9. Environment Management and Monitoring Plans[12]

9.1. Environment Management Plan

The following Environment Management Plan (EMP) covers issues raised in the REA for which at least half of the survey participants identified as important, i.e., a ranking about 15. The EMP should be considered strategic, with topics grouped in sets with common characteristics.

The issues and actions listed should be considered in the analysis developed as part of the annual humanitarian programming cycle and, where appropriate, incorporated into the Shelter Cluster strategy. Where possible, these actions should be taken in collaboration with government authorities.

Some of the EMP actions are similar to some of the suggested actions in the **Profile**. The suggested actions are generally intended to improve the impact of assistance. The following actions address specific environment-related challenges noted for IDP operations in Yemen.

Yemen Online REA Issues Ranking	
Topic	**Action**
Natural Hazards	Develop a disaster risk management plan for IDP operations for hazards facing Yemen including specific plans for flood, winter weather and fires in camps[13].
Personal safety	Together with the CCCM and Protection Clusters, conduct personal safety assessments and development safety plans for locations where shelter is provided.
Water	Assure water supplies are sufficient on a year-round basis for shelters populations, preferably before shelters are constructed.
Energy	• Assess energy needs and sources and develop site-specific plans to meet these needs, in collaboration with the CCCM Cluster. • Assess the utility of fuel-efficient stoves and environmentally friendly fuel sources for cooking and heating.
Food security, livelihoods, access to domestic and natural resources, self-sufficiency.	• Assess the capacity of assistance populations to meet food, domestics needs from available livelihoods and natural resources. • Minimize impacts on natural resources. • Expand livelihoods options to reduce reliance on external assistance and demand on natural resources.
Shelter design and occupation density[14]	• Review shelter designs to address climate concerns (heat, cold), minimize demand on natural resources and increases shelter durability.[15] • Regularly decongest sites through replanning and removing and reusing or repurposing unused shelters.
Health care	Assure that a health care facility is part of any site plan, in cooperation with the CCCM and Health Clusters.
Safe management of waste	• Establish, with the CCCM Cluster, a standard waste management protocol for sites, including sanitation, reuse, repurposing and recycling. • Collaborate with the WASH, CCCM and Health Clusters on the safe management of fecal waste.
Social solidarity	• In collaboration with other Clusters, implement projects to strengthen social connections between IDPs and neighboring populations, including natural resource management committees.

[12] There are separate plans to manage impacts and monitor these activities.
[13] This plan should provide a standard framework for fire risk reduction, warning (e.g., for high winds) and response on which IDP-site plans are developed.
[14] There is an issue with fire safety and the propensity of shelter occupants to expand their living space with new barriers (e.g., old tenting, wood) as well as the addition of
[15] Where possible, shelters should be dismountable when no longer needed, or for return.

Expectations	• Work with others in the humanitarian community to emphasize to IDPs that they should increasingly take responsibility for their own needs, given the limited resources available.
Transport	• Work with the Logistics Cluster to map site accessibility and work with the CCCM Cluster and local authorities to improve accessibility.
Distance affected population have moved	In the site planning process, identify how distance traveled has affected available resources (e.g., household items) and the level of assistance needed. A gap between household and other basic resource needs, and assistance will likely result in efforts to use natural resources to cover the gap.

9.2. Plan Monitoring

EMP implementation should be monitored as part of the regular Humanitarian Response Plan monitoring. As the EMP actions are at the strategic level, the monitoring should focus on the number of Humanitarian Response Plan (HRP) actions or activities which are linked to the management options. In addition, the **Rapid Environmental Screening** approach (see Annex 22.6) should be used to assess the actual incorporation of environmental considerations into projects developed under the HRP.

9.3. Suggested Further Action

- Adopt and regularly monitor implementation of the EMP.
- Incorporate the **Rapid Environmental Screening** approach into the screening of HRP projects.

10. Humanitarian Programming

10.1. Humanitarian Programming Cycle

As a conflict-impacted country, Yemen goes through the annual Humanitarian Programming Cycle (see image below). Further information on the HPC can be found at this link, including the current year guidance and templates:
https://www.humanitarianresponse.info/en/programme-cycle/space.

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.

10.2. Suggested Further Actions

- Incorporate the Environmental Assessment results (Section 8), Environment Management Plan (Section 9) and indicators from the Shelter Cluster Tip Sheet into the development of HNO and HRP documents.
- Incorporate NEAT+ results, when available, into the development of HNO and HRP documents.
- Incorporate at least one environmental indicator based on environmental issues identified in Environmental Impact Assessment (Section 8) and Environment Management Plan (Section 9).

11. Remote Sensing and GIS Data and Analysis

11.1. Overview

The Shelter Cluster currently makes relatively little use of remote sensing and GIS data for the monitoring of environmental impacts of IDPs. Information is collected into data bases for use in the Cluster Dashboard and for fires. Locational and attribute data collected for managed and unmanaged IDP sites could be merged with data on natural resources (e.g., biomass, water, etc.) to better understand the impact of these sites, as well as monitoring change in environmental conditions over time.

11.2. Suggested Further Action

Expand the use of remotely sensed and site attribute data to assess site suitability and environmental impact over time.

12. Site Selection and Planning

12.1. Overview

Site selection is led by the IDP ExUnit (IRG areas) or SCMCHA (de facto administered areas) in collaboration with local authorities. Once a site has been physically established it is managed by IDP ExUnit or SCMCHA staff cooperatively with the CCCM Cluster. Note, however, that not all IDP sites in Yemen are planned or formally managed.

Once the IDP ExUnit or SCMCHA has completed the administrative process of selecting a site, development plans and site preparation are conducted as a collaborative process involving the IDP ExUnit or SCMCHA, CCCM, Shelter and other clusters. The humanitarian partners use The Multi-Cluster Land Suitability (MCLS) Assessment Form to evaluate a prosed site. The Form includes sections related to the environment, including (1) Physical Characteristics of the Land, (2) Technological (including unexploded munitions) and natural hazards, (3) Climate conditions, (4), Earthworks required, (5) Water, (6) Sanitation, (7) Accessibility, (8) Energy, (10) Livelihoods access, (11) Proximity to environmentally sensitive sites, and (11) Foreseen environmental impact. The form itself is not clear on how the foreseen environmental impacts would be established.

12.2. Suggested Further Action

The Land Suitability Assessment Form and NEAT+ should be compared to define overlaps and gaps, with a possible merging of results to provide a more comprehensive environmental review than currently possible with either tool. In this process, the Green Recovery and Reconstruction Training Toolkit module on site planning should also be consulted to identify any topics which could be added to the Land Suitability Assessment Form or used in site preparation.

13. Housing, Land and Property Security and Environment

Extracted from: **United Nations Yemen Sustainable Development Cooperation Framework 2022 – 2024**:[16]

In Yemen, state-owned land accounts for about 90 percent of all land and the remaining 10 percent includes agricultural and cultivated land (five to nine percent) and urban lands covered by human settlements (cities and villages; one to two percent). 90 percent of land ownership is informal or lacks legally recognized tenure, with tribal systems often governing tenure and transactions. In practice, through land and real estate law generally governs urban land rights, however, residents refer to customary rights relating to land in rural areas.

Housing, land, and property (HLP) rights violations and discrimination are widespread in Yemen10.

[16] Numbers at end of sentences refer to references in the original.

Most ownership rights are not well documented, which has led to disputes and conflict in the community due to the application of customary rights aimed at finding alternative ways of settling grievances. There is no system in place to document land titles and related documents, whether the land is formal or customary. Women are particularly marginalised and negatively affected by these circumstances facing many barriers to equally accessing their HLP rights. The situation is exacerbated by the lack of a clear policy on how to manage and register housing, land or property rights. The national cadastre is weak and not applicable in all areas.

Extracted from **Detailed Shelter Response Profile Yemen: Local Building Cultures for Sustainable and Resilient Habitats**.[17]

Land registration in Yemen is a critical issue, especially in urban settings. The strength of traditions of Yemeni social and cultural structures bind the current land practices followed by most people. A severe lack of trust in authority and lack of conformity to formal procedures exists, and this fosters hybrid systems and informal dealings26.

The registration of land titles with the Land Registration Department in the General Authority of Lands, Survey and Urban Planning (GALSUP) is now a compulsory step in obtaining a building permit. However, in practice, registration rarely happens. For example, according to some estimations, 81.5% of construction in Sana'a happens without permits. One reason is that property transactions for both land and real estate are taxed at 3% of the sales value, due when the new owner registers the property on their name, which poses an obstacle to low-income families in particular. In addition, as a result of the widespread lack of official registration, disputes over land are widespread. Indeed, land disputes are estimated to constitute 30-50 % of all cases that appear before primary courts27.

The ACAPS report **Yemen: Challenges to Housing, Land, and Property Rights** provides considerable information on the HLP situation in Yemen as of April, 2023. Key messages include:

- *Many IDPs experience land tenure insecurity, which restricts temporary solutions from turning into durable solutions and creates the risk of multiple displacements, forced evictions, and exploitation.*
- *Displaced people living in non-camp IDP sites and among renters face forced evictions over a lack of tenure agreements and potential inability to pay rent. Forced evictions are a resource challenge for humanitarian services, which must provide infrastructure for new IDP sites.*
- *Conflict-induced displacement has created a huge influx to some cities, leading to higher service demands.*
- *Displaced women face protection issues in insecure tenure arrangements when unable to pay rent and when trying to claim their HLP rights in inheritance and divorce cases.*
- *Before the conflict, certain groups, such as women, already faced disadvantages in accessing their HLP rights. Both tradition and law largely restrict housing, land and property ownership to men. Members of the Muhamasheen in Yemen also face discrimination and cannot access their HLP rights. Access to adequate housing and land dispute resolution mechanisms has become even more difficult for those displaced.*
- *Refugees and asylum seekers face similar HLP issues as IDPs regarding host community integration.*
- *The lack of civil documentation of IDPs hampers any relocation, integration, or return efforts and access to services.*

[17] Numbers at end of sentences refer to references in the original.

IDPs may have lost documentation during displacement, authorities may have confiscated it, it may be outdated, or some IDPs may never have had any documents even before the conflict. The civil registry system for processing documents has largely collapsed or is rendered ineffective through competing governance claims in the IRG areas of Yemen.

- *Relocation land is scarce, with territorial disputes between returnees and new owners, landlords unwilling to provide land for durable solutions, flood risks, and explosive remnants of war (ERW) aggravating the issue.*
- *An inefficient land registry system and verification mechanism for land titles and deeds, corruption, and land-grabbing hamper land dispute resolutions and durable displacement solutions.*
- *Local authorities have limited capacities to deal with land dispute resolution cases, and tribal land decisions sometimes weaken their authority and leverage.*
- *The lack of affordable housing influences IDPs' choices for temporary and durable displacement solutions.*
- *Returnees do not have durable solutions for restoring HLP ownership, livelihood opportunities, and access to services.*
- *Durable displacement solutions are built on integrated analyses to gain situational awareness of the situations of IDPs and the HLP challenges they face. This integration requires a good understanding of the information available from and collaboration with host communities, local authorities and responders, and other stakeholders beyond the humanitarian response.*

There is an HLP Working Group in Yemen, chaired by UNHCR with a national co-chair. Per the Working Group's ToR, the overall objective is *to facilitate a systematic and structured approach to identifying and addressing HLP issues affecting the displaced population, returnees and host communities in Yemen.*

Specific objectives include to:

1. Identify priority HLP issues in Yemen and provide leadership and guidance in addressing and resolving them, with the view to enhance HLP considerations in the humanitarian response and securing durable solutions for the IDPs and returnees;

2. Support effective coordination of HLP responses in Yemen at the national and sub-national level to enhance accountability, predictability and effectiveness of humanitarian actions and linkages to development initiatives.

14. Site Decommissioning

14.1. Overview

The Yemen Shelter Cluster has had limited involvement in site decommissioning. The process would be coordinated by the IDP ExUnit or SCMCHA in cooperation with clusters involved in the site.

Minimum standards for site decommissioning as summarized in the box at right. In addition, good practice is that a decommissioning plan be developed as part of site development and management plan.

Minimum Decommissioning Requirements

Sphere Shelter Standard 7 includes two site decommissioning indicators:

- *% of temporary settlement sites restored to a better condition than before use* and
- *% solid waste on the site repurposed, reused, or recycled - target: 70% of volume.*

These indicators provide a minimum requirement for site decommissioning planning and results.

14.2. Suggested Further Actions

The Shelter Cluster, in cooperation with the CCCM and other Clusters and the IDP ExUnit or SCMCHA, should develop standard site decommissioning guidance and apply this guidance for sites which are managed by the IDP ExUnit or SCMCHA

14.3. Additional Guidance

Information on side decommissioning is available from:

- **Environmental Perspectives of Camp Phase-Out and Closure: A Compendium of Lessons Learned from Africa**, and,
- **VEHA - Field Implementation Guidance: Decommissioning of Sites and Handover**,

15. Shelter Construction

15.1. Shelter Cluster Assistance

The Shelter Cluster has developed guidance on a number of shelter options over the years. Current guidance covers: (1) Emergency Shelter, (2) Transitional Shelter, (3) **House Rehabilitation Guidelines**, (4) **Rehabilitation & Construction Guidelines- Permanent Shelters** and (5) shelter upgrading and repairs, as well as a shelter typology.

There are ongoing efforts to develop improved shelter designs. Given that shelter solutions will continue to be updated, the Yemen Shelter Cluster web pages should be checked for the latest information on current designs and activities.

The most significant environmental-related challenges for IDP shelter are (1) climate and (2) natural resource availability and access (e.g., access to land and property). In terms of climate conditions, shelters in many parts of Yemen confront daily high temperatures with limited atmospheric cooling at night during parts of the year. As a result, indoor shelters temperatures may exceed the 32c threshold identified by the WHO[18]. In addition, WHO identifies 24c as an optimal health level at night, likely exceeded in shelters during some seasons of the year in parts of Yemen. While Yemeni residents may have higher tolerances for heat, extremely high heat levels in shelters are likely to have negative long term health consequences for some occupants.[19]

The Shelter Cluster partners have considered different shelter designs to manage the heat issue and includes insulation on some designs. While one design did allow for better air circulation, it was not preferred due to concerns about privacy and the wall areas intended to facilitate air circulation were eventually closed off.

[18] See https://www.who.int/news-room/fact-sheets/detail/climate-change-heat-and-health.

[19] Note that this concern about high temperatures inside shelters is separate from risks posed by heat waves. See file:///C:/Users/haved/Downloads/WHO-EURO-2011-2510-42266-58691-eng.pdf for additional information.

In other parts of the country, the climate issue is that of cold weather. The Shelter Cluster has attempted to address this issue in winterization assistance. The effectiveness of this assistance, and additional options, could be worth further consideration further. (See Section 5.3.1.)

While shelter constructed out of local materials tend to be cooler than other designs, accessing sufficient local nature resources to build local-material shelters would be damaging to the natural environment in most locations. Rebuilding damage housing, or permanent housing from scratch, will likely require a considerable level of natural resources, including sand, water and soil, with negative impacts on the environment, as well as facing land and property challenges.

The guidance on shelter options developed by the Shelter Cluster (see first paragraph, above) is broadly comprehensive. However, they do not include guidance on how to assess the environmental impacts of shelter construction or of alternative designs. This omission is important as most of the resources used to construct shelters come from the natural environment in Yemen (e.g., sand, soil, water, rocks, grass, wood, etc.) or from external sources (e.g., sawn timber).

The Yemen Shelter Cluster is currently reviewing shelter designs, including an assessment of their carbon footprint, costs and durability. These results should be added to the **Profile** when completed.

15.2. Suggested Further Action

- The Shelter Cluster should consider further design work on climate-appropriate shelter designs which meet Sphere Standard indicators for ambient heat.
- The Shelter Cluster should consider conducting environmental scorecard assessments of shelter designs to identify possible reductions in environmental impacts and as input into alternative designs.
- The Shelter and WASH activity components of NEAT+ should be used to assess existing shelter sites.
- For sheltering efforts of any type which exceed 100 families, the Shelter Cluster should consider developing a short checklist to review environmental impacts from construction activities. This checklist can be based on the standard environment management plans used for construction projects.

16. Non-Food Assistance

16.1. Non-Food Items

Shelter Cluster partners provide a standard package of NFIs (see Annex 22.7) as well as winterization assistance where appropriate and there is an NFI working group. The Shelter Cluster maintains a common NFI stock, and several partners also keep stocks of NFI.

16.2. Cash Assistance

Shelter Cluster partners use cash for a variety of purposes, including for rent payments, to fund shelter upgrades and for the purchase of NFIs.

16.3. Suggested Further Actions

The Shelter Cluster should consider a FNI scorecard assessment to identify penitential to reduce environmental impacts. Contact the Global Shelter Cluster for further information.

17. Logistics and Procurement

17.1. Overview

Shelter Cluster partners rely on a combination of locally sourced (but generally commercially imported) and directly imported items to cover shelter and non-food item needs. Imported items are generally delivered by sea and transported internally by truck.

Moving items within Yemen is complicated by the geography, distances, variable road conditions and lines of conflict.

17.2. Suggested Further Actions

The Shelter Cluster should assess to what degree packaging for NFIs can be reduced, with any critical packaging repurposed or recycled where not otherwise used. Consult the Joint Initiative on Packing Waste and the WREC project for more guidance.

18. Key Considerations for Energy and Fuel

18.1. Overview

To date, energy and fuel have not been central to the overall support to IDPs in Yemen. Stoves and gas bottles have been provided as NFIs in some cases and the Shelter Cluster has researched stove design options. Winterization efforts focus on preserving body energy for warmth though providing clothing and insulation.

However, an overall policy-process-products-and-impacts approach has not yet been adopted to address the links between humanitarian standards, energy needs, fuel and technologies (e.g., fuel efficient stoves, heating, fans for cooling, etc.) and environmental impact. Such an approach would provide a clearer picture of how energy is used by IDPs and where this energy is sourced. In turn, these results would provide insight into issues such as electrical and cooking fires, land and property rights for accessing natural resources, and livelihoods mechanisms and their impacts on the environment.[20]

18.2. Suggested Further Action

The Shelter Cluster, in cooperation with partners, should conduct a policy-process-products-and-impacts assessment of IDP energy needs and uses and use the results to refine approaches to supporting IPS energy needs to minimize negative impacts on the environment.

[20] Several of these issues are linked to adaptation to climate change and may justify specific funding to address impacts.

19. Debris and Waste Management

19.1. Overview

The Yemen Shelter Cluster is not currently involved in debris and waste management. The CCCM Cluster and partners are expected to lead in this area for IDP sites. As well, the Shelter Cluster has not been involved in conflict debris clearance for resettlement, although this may happen in the future under a Durable Solutions effort (see Section 19).

Looking forward, the Shelter Cluster can use these sources for planning purposes when a greater role in waste and debris is anticipated: (1) Waste management in camp settings, (2) Hazardous waste management, and (3) Medica/Biohazard waste (see box at right).

Waste to Livelihoods to Reduced Assistance

Waste from IDP sites can provide livelihood opportunities, particularly repurposing. An example is composing organic waste for use in gardens and converting organic waste into fuel.

While livelihood activities are not normally a focus of shelter assistance, increasing assets available to IDPs through expanded livelihoods reduces a need for NFIs and materials for upgrading shelters.

20. Durable Solutions

20.1. Overview

The humanitarian community in Yemen is working on a policy approach to durable solutions for the IDPs. Contact UN Resident Coordinator Office – Yemen for the current version of the concept note.

Initial analysis of the concept note indicates it is aligned with the **IASC Framework on Durable Solutions for Internally Displaced** with the exception of inclusion of the environment. The **IASC Framework** includes environment as a consideration (see pages 18 and 19) and good practice would indicate that both strategic and program-level environmental assessments would be appropriate.

More information on strategic environmental assessments can be found at these links:

- https://www.unep.org/resources/report/environmental-impact-assessment-and-strategic-environmental-assessment-towards,
- https://www.eia.nl/en/topics/esia-sea/sea, and
- https://www.ucl.ac.uk/hazard-centre/sites/hazard_centre/files/wp29.pdf.

Note that the Netherlands Commission for Environmental Assessment provides technical support on SEAs.

A summary note of environmental considerations on durable solutions has been prepared for the Shelter Cluster and is available in Annex 22.8

20.2. Suggested Further Actions

As shelter and settlements aspects of a durable solutions approach for Yemen become clearer, the Shelter Cluster should consider conducting a strategic environmental impact assessment coving the areas of direct concern, including construction, water, access to natural resources, include sand and earth, land and property issues and climate adaptation. This assessment can, largely, be based on currently available information and projections of changes in shelter and settlements size, number, content and location. Support from the Netherlands Commission for Environmental Assessment may be possible and collaboration with other clusters, particularly WASH and CCCM, beneficial.

21. Disaster Risk Management and Nature-based Solutions

21.1. Overview

The significant hazards in Yemen are covered in Section 5.1 and the disaster management system summarized in Section 5.5.

The humanitarian community, led by OCHA Yemen, is implementing an Anticipatory Action pilot in 2023. This approach combines early warning with early action to reduce the direct impact of a hazard on an at-risk population, particularly in terms of the timely evacuation and thus reducing the threat to lives. The Anticipatory Action pilot addresses the fact that past responses to flooding were reactionary and did not reduce the impact of flooding before the hazard events occurred. Annex 22.3 provides a concept note, a description of the piloting process and a note on targeting the pilot effort.

A challenge with the Anticipatory Action approach is the degree to which this approach can engage in risk reduction as well as warning and evacuations. The need to engage with developmental actors on flood prevention and risk reduction is noted in the concept note. How this would take place in a conflict-affected country where the scope of developmental efforts, and particularly community-based natural resource management (a logical approach to flood management), are limited, is unclear.

At the same time, options for risk reduction, including using nature-based solutions, are likely on a location-by-location basis. Reducing the risks from flooding, even partially, would reduce the loss of shelters and property due to flooding, and reduce relief requirements.

However, for risk reduction to be effective, a multiyear approach is necessary. This is required for preparation of reduction plans (often involving surveys) and coordination with IDPs (who could be expected to be a source of labor) and neighboring communities. A multi-year approach would require amending the annual humanitarian programming process to include multiyear anticipatory action plans which include appropriately scaled[21] risk reduction activities.

The Shelter Cluster is also implementing flood risk reduction efforts in several locations. These efforts are separate from the Anticipatory Action plans, but overlap in terms of developing and implementing risk reduction measures.

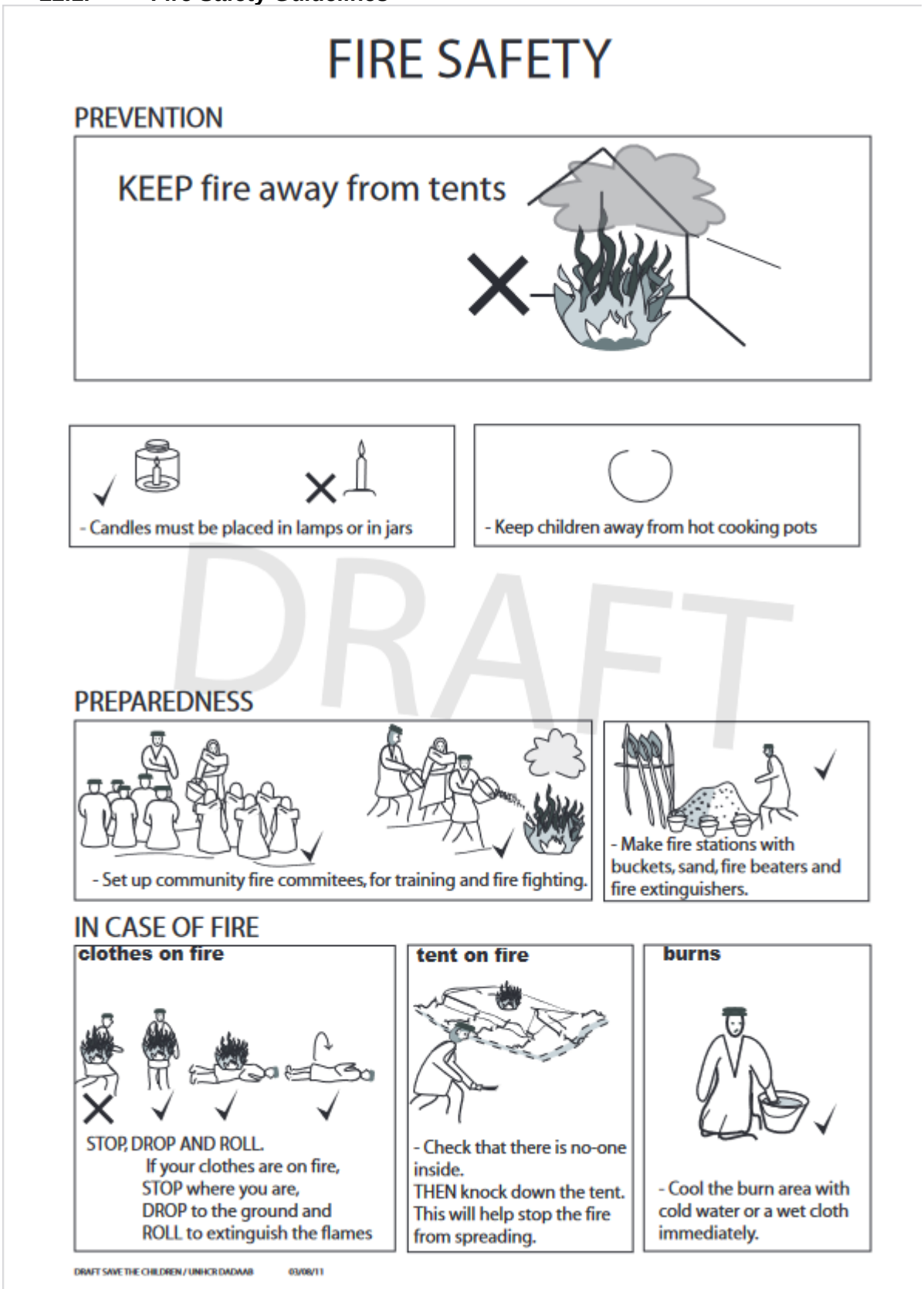
21.2. Suggested Further Action

- The Shelter Cluster should raise the issue of including risk reduction into the Anticipatory Action pilot and incorporating the risk reduction approach as a multiyear effort in the annual humanitarian planning cycle.
- As work on durable solutions progresses, flood risk reduction using nature-based solutions should be included in planning and implementation to integrate the environment and natural resource management into this effort.
- Separate efforts by the Shelter Cluster to address flood risk should incorporate nature-based solutions.

[21] Care should be taken on ensuring that flood risk reduction is right-sized to the risks and resources available. It is a waste of effort to implement flood risk reduction measures which are too small for the floods that occur. Designs should be developed based on flood conditions not funds available.

22. Annexes

22.1. Fire Safety Guidelines



Source link: https://sheltercluster.s3.eu-central-1.amazonaws.com/public/docs/11-08-03draft-firesafety.pdf.

22.2. Disaster History

Disaster	Disaster Subtype	Location	Total Deaths	# Injured	# Affected	# Homeless	Total Affected	Total Damages ('000 US$)	Total Damages, Adjusted ('000 US$)
Complex Disasters		Sana\'a, Hajjah, Al Baida			1437214		1437214		
Drought									
Drought									
Drought									
Drought		Taiz-Torba, Tihama			2000000	20000	2020000	10000	79779
Earthquake	Ground movement	Dhamar province	1507	1500	400000		401500	2000000	6065385
Earthquake	Ground movement	Sadah, Razih	1200	200	5000	3500	8700		
Earthquake	Ground movement	Jabal Bahr, Bani Zahir villages (Al-Udayn district, Hazm Al-Udein district, Ebb province)	10	39		40000	40039		
Epidemic	Viral disease	Hodeiadah, Taiz, Aden, Hajja, Lahj, Hudaidah, Aden, Hajja, Lahj, Shabwa, Marib, Rayma	219	59486			59486		
Epidemic	Bacterial disease	Ibb, Amanat (Sana'a city) and Hodeidah governorate	713	461542			461542		
Epidemic	Bacterial disease	Sanaa	35	298			298		
Epidemic	Bacterial disease	Sanaa							
Epidemic	Bacterial disease	Al Bayda, Al Hudaydah, Al Dhale's, Hajjah, Lahj, Taiz, Ibb, Amamat Al Asimah, Aden, Amran, Sanaa	11	180			180		
Epidemic	Viral disease	Hodeidah, Lahj, Hadramout, Aden, Taiz, Shabwa	3		3026		3026		
Epidemic	Viral disease	Hadramoat Sayeun, Hudeida, Hajjah, Taiz, Sanaa, Sanna city and Mary governorates			179		179		

Epidemic	Viral disease	Wadi Mawr (Al-Hudaydah Governorate)	32		289		289		
Flood	Riverine flood	Saiyoon district (Central and Eastern regions)	25		260000	80000	340000	33000	77905
Flood	Flash flood	Nationwide	482		300000	50000	350000	975000	2956875
Flood	Flash flood	Abyan			3000		3000	16000	51498
Flood					12000		12000	16200	52142
Flood									
Flood	Riverine flood		38			150000	150000		
Flood		Sanaa region	52		50000		50000	12700	69063
Flood		Hugaryah Area (Taiz province)	60	612		2250	2862		
Flood	Flash flood	Hajjah, Al Jawf, Saada, and Ma'rib Governorates	13		3400		3400		
Flood		Marib, Al Mahwit, Taiz, Ibb, Hadramawt, Al Bayda, Amran, Sadaa, Dhamar Al Hodeida, Sana'a Hajjah, Al Mahra governorates (Sanna)	77		175000		175000		
Flood		Ad Dali', Al Hodeidah, Hadramawt, Hajjah and Ta'iz governorate		41000			41000		
Flood		Dhamar, Amran, Al Mahwit, Marib, Ibb, Sana'a, Hajjah, Al Hodeidah, Al Jawf, Al Bayda, Al Dhale, Raymah, Hadramout , Lahj, Shabwah, Al Mahrah, Socotra governorates.	33	28	205800		205828		
Flood	Flash flood	Sanaa, Ibb, Shabwa, Hodeida, Aden, Abyan, Al Dhale'e, Lahj, Hadramaut, Ma'rib and Ta'iz governorates	13		22380		22380		
Flood		Lahij, Ibb, Shabwah, Abyan and Sana'a governorates	17			150	150		
Flood		Marib, Dhale, Abyan, Hadhramaut, Ibb, Hodeidah, Hajjah Governorates	20	6	9000		9006		
Flood		Hadhramaut, Shabwa, Al Mahrah	16	85	130		215		
Flood	Flash flood	Aden, Lahj, Taiz, Ad Dali', Abyan, Hadramawt governorates	10	30	150000		150030	10000	11308

Flood	Flash flood	Lahj, Aden, Abyan, Taizz, Al Dale'e, Al Mahrah and Hadramaut governorates	2	4	23125		23129	10000	11308
Flood		Al Mahwit Governorate, Ibb Governorate		12		500		500		
Flood		Sanaa		6						
Flood	Flash flood	Marib, Sa'ada, Aden, Shabwa, Lahj, Taizz, Hadramaut, Ibb, Al Bayda, Al Jawf, Hajjah, Dhamar, Rayma, Hajjah governorates.	8		80000		80000		
Flood		Taëz, Lahj provinces, Portions of Jibla (south of Ibb), Taizz city, Ibb city		50	8			8		
Flood	Flash flood	Al Hudaydah, Amran, Hajjah, Sana'a, Hajjah, Al Mahwit, Aden, Marib provinces	20		29750		29750		
Flood	Riverine flood	Taizz, Dhamar, Al Mahwit, Sana'a, Ibb, Hajjah, Al Hudaydah, Shabwah, Abyan provinces	40	10	49082		49092		
Flood	Riverine flood	Al Mashannah district (Ibb province), Dhamar, Sana'a provinces	15						
Flood	Riverine flood	Sana'a province	7	2		1000	1002		
Flood	Flash flood	Tarim, Sah, Shibam, Al Qatn, Wadi Al Ayn districts (Hadramaut province), Al Maharah, Taizz, Lahj, Al Mahwit provinces	90	64	25000		25064	400000	543709
Flood	Riverine flood	Sana'a province	50						
Flood	Flash flood	Hadramaut, Ibb provinces	36	18	600		618		
Flood	Riverine flood	Rayma, Dhamar provinces	7		2000		2000		
Flood	Riverine flood	Dhamar, Al Hudaydah, Sana'a, Taizz, Sa'ada provinces	25	20		300	320		
Flood	Flash flood	Ma'arbar city (Jahran district, Dhamar province)	5			2000	2000		

Flood	Flash flood	Al Hudaydah, Al Jawf, Al Mahwit, Amran, Hajjah, Sa'ada, Taizz provinces	12	6			6		
Flood	Riverine flood	Sana'a, Al Hudaydah provinces	10		215	500	715		
Flood	Riverine flood	Hajjah, Taizz provinces	15						
Flood	Riverine flood	Taizz, Al Hudaydah, Hadramaut provinces	28						
Flood	Riverine flood	Raymah province	13						
Flood	Riverine flood	As Salafiyah district (Raymah province)	10						
Flood			Hadramaut province	2		260	440	700		
Flood	Flash flood	Amran, Hadramaut, Sa'ada, Al Hudaydah provinces	33						
Flood			Socotra Archipelago		12250	7500	19750		
Flood	Flash flood	Siham valley Red Sea port Hodeida Ibb Abin Marib Sanaa Lahaj (West Yemen)	70		240		240		
Flood		Tihama Valley in Al Hodeida Governate, Al-Zahara and Al-Luhyah districts		3000			3000		
Flood	Riverine flood	Hudayda, Taiz regions	7		5000		5000	10000	18658
Flood	Riverine flood	Shabwa, Mareb, Hadhramout, Aljawf, El Jouf, Abin Governorates	338		124000	114210	238210	1200000	2238991
Flood	Riverine flood	Lahej, Abyan, Aden Governorates	31		9000	12500	21500	1500	3039
Flood	Riverine flood	Socotra IsL.			30000	30000			
Industrial accident	Explosion	Hodeida		21	26			26		

Industrial accident	Explosion	Abyane province		70	90			90		
Industrial accident	Explosion	Aden		38	100			100		
Insect infestation	Locust	Northern Tihama								
Insect infestation	Worms									
Landslide	Landslide	Al-Lassbah village (Al-Shamayteen mountain region, Taez province)		20	20			20		
Landslide	Landslide	Modawar village (Al Mahwait district, Al Mahwit province)		11						
Landslide	Landslide	Al-Dhafir village (Bani Matar District, Sana'a Governorate)		65	11			11		
Miscellaneous accident	Fire	Aden		3			500	500		
Miscellaneous accident	Fire	Sanaa		43	170			170		
Miscellaneous accident	Explosion	Mahwit province		14						
Miscellaneous accident	Explosion	Abs (Hija province)		10						
Miscellaneous accident	Explosion	Taëz		10	15			15		
Miscellaneous accident	Other	Bani Qaïs (Hija province)		15						
Miscellaneous accident	Collapse	Hababah (Omrane province)		20						
Miscellaneous accident	Collapse	Al-Baidaa province		15	16			16		
Miscellaneous accident	Explosion	Al-Jaboub		10	32			32		
Storm	Tropical cyclone	Al Maharah governorate	25	124	15000		15124			
Storm	Tropical cyclone	Socotra Isl.	24		750		750			

Storm	Tropical cyclone	Hidaybu, Qulensya Wa Abd Al Kuri districts (Hadramaut province), Aden province	18		15000		15000			
Storm	Tropical cyclone	Abyan, Hadramaut, Shabwah provinces	8	65	110000		110065		200000	246948
Storm		Aden province		17						
Storm		Sa'ada province		13						
Transport accident	Water	Aden Gulf		62	38			38		
Transport accident	Water	Near Cocotra		60						
Transport accident	Water	Near Dhoubab		35						
Transport accident	Water	Near Al-Makha		70						
Transport accident	Water	Near Dhubab, at the entrance of Bab El-Mandeb strait		60						
Transport accident	Water	Near Beer Ali coast (Shabwa province)		43		30		30		
Transport accident	Air	Sanaa		12	22			22		
Transport accident	Road	Hajjah province		15	16			16		
Transport accident	Water	Gulf of Aden		35						
Transport accident	Water	Gulf of Aden, Lahij province		40						
Transport accident	Water	Gulf of Aden, Shabwa		57	1			1		
Transport accident	Water	Near Chabwa province		49		1		1		
Transport accident	Water			28						
Transport accident	Water	Aden Gulf		21		61		61		
Transport accident	Water	Red Sea		17						

Transport accident	Air	Kahlan Mount, near Saasa		13						
Transport accident	Water	Aden Gulf		65						
Transport accident	Water	Near Bourom (Aden Gulf)		47						
Transport accident	Water	Aden Gulf (Abyan region)		35						
Transport accident	Water			28		23		23		
Transport accident	Water	Red Sea, Guld of Aden		95						
Transport accident	Water	Red Sea, Guldfof Aden		99						
Transport accident	Water	Near Hanich Isl.		10		8		8		
Transport accident	Road	Ibb province		21	65			65		
Transport accident	Water	Gulf of Aden		45						
Transport accident	Road	Between Hodeida and Jizane (Saudi Arabia)		13	18			18		
Transport accident	Water	Gulf of Aden		80		25		25		
Transport accident	Road	West		20	1			1		
Transport accident	Road	Between Lahj and Aden provinces		14	4			4		
Transport accident	Water			180						
Transport accident	Water	Mer Rouge		131						
Transport accident	Water	Near Aden		90						
Transport accident	Air			57						
Volcanic activity	Ash fall	Jabal Al-Tayr island (Alluheyah district, Al Hudaydah province)		6	15			15		

22.3. Anticipatory Action

22.3.1. Anticipatory Action Concept Note

Anticipatory Action Concept Note

Yemen

As of March 2023

Summary

The purpose of this document is to provide an overview of the OCHA-led exploratory work to set up an anticipatory action pilot initiative in Yemen. The document outlines the anticipatory action concept, presents the case for collective anticipatory action in Yemen, provides an overview of key anticipatory action elements currently under development, including forecast triggers, action plan, target selection and financing arrangements, and discusses next steps in the process of operationalizing the initiative ahead of the 2023 rainy season.

OCHA's approach to anticipatory action

Anticipatory action is commonly defined as acting ahead of predicted hazardous events to prevent or reduce acute humanitarian impacts before they fully unfold. Anticipatory action mechanisms generally incorporate three elements: (1) pre-agreed **predictable financing** for the implementation of (2) pre-agreed **activity plans**, released when (3) an agreed ***trigger threshold*** (information typically provided by a forecast) is reached.

By leveraging early warning systems and scientific advances in predicting disasters, anticipatory action maximizes the window of opportunity between the moment of prediction and the arrival of a forecasted shock to trigger interventions that prevent or mitigate imminent humanitarian impacts. Rather than responding to confirmed needs and suffering, acting in an anticipatory manner is linked to risk and vulnerability. However, anticipatory action does not replace traditional response. As one component of the disaster risk management cycle, it is not meant as a standalone but can – and often must – be based on preparedness planning, followed by an appropriate early response, as necessary.

Since 2020, OCHA has facilitated collective and coordinated anticipatory action and provided pre-arranged financing through its pooled funds. OCHA promotes jointly developed anticipatory action initiatives that are more than the sum of the parts and work better for the people it serves.

The case for anticipatory action in Yemen

Against the backdrop of more than eight years of civil conflict, seasonal, rain-induced flooding has inflicted devastating consequences upon the Yemeni population, causing loss of life and property damage among other adverse impacts. By the end of the 2022 rainy season, one of the wettest on record, an estimated 73,854 families were affected across 146 districts in 18 governorates, according to field reports from humanitarian partners.22 Impacts were most devastating on the vulnerable, conflict-affected population living in internal displacement sites and other informal settlements where shelters, livelihoods and water sources were often damaged or destroyed. Humanitarian organizations tried to provide immediate relief across flood-affected areas, but with limited resources and capacity, the overall response suffered from delays.

Due to climate change, increasingly erratic rain patterns are causing floods in Yemen and such extreme climate events are predicted to increase in frequency, magnitude and seasonality, thus leading to even worse humanitarian consequences than before. With needs expected to continue to outpace available funding and response capacities, there is a need to invest in mechanisms to help mitigate seasonal flood impacts more efficiently while engaging authorities on finding less flood-prone sites for Internally Displaced Persons (IDP) and investing in durable solutions by bringing on board disaster risk reduction and development players.

In the Yemeni context, anticipatory action has the potential to catalyze the provision of timely, collective and coordinated humanitarian assistance to minimize the potential impact of predicted heavy floods on at-risk populations. Simultaneously, anticipatory action presents an opportunity to put the humanitarian-development

[22] OCHA, Yemen Flood Snapshot, As of 30 September 2022

nexus strategy into practice, and work more closely with development actors to prevent or reduce the impact of floods.

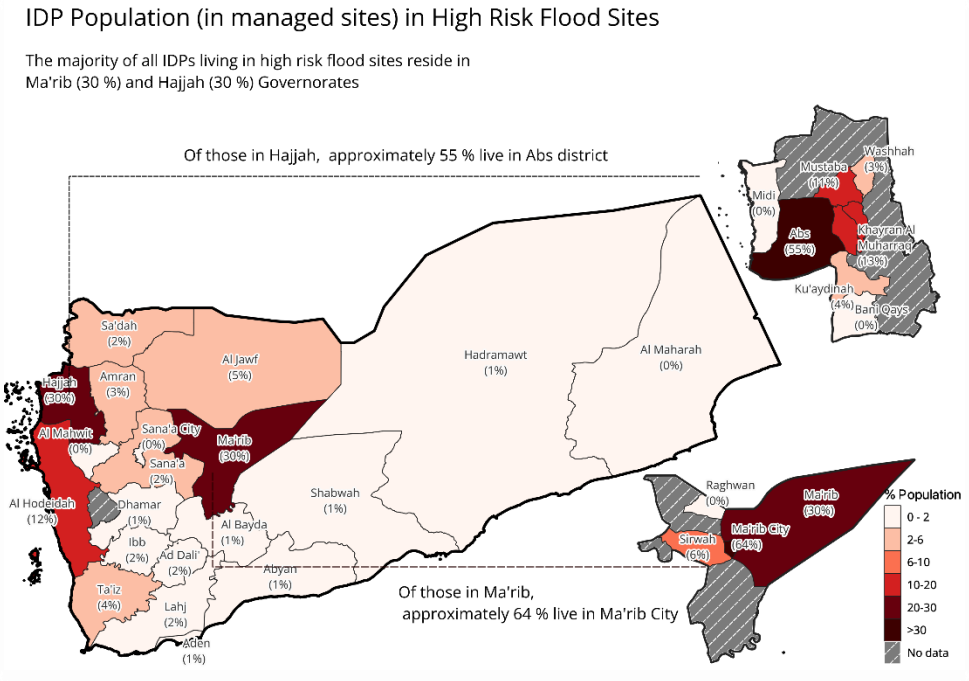
Based on an initial analysis that is summarized in the sections below, Yemen appears to be a suitable context for the development of a pilot anticipatory action initiative, which will initially have a limited geographical and operational scope. In line with the Humanitarian Coordinator's vision to promote anticipatory action to predictable, recurrent shocks,[23] the OCHA Country Office proposes to channel funding through the Yemen Humanitarian Fund (YHF) to, among other things, ensure complementarities with funded activities of partners.

Scope and exposure

According to the 2022 HNO, more than 52 per cent of populated areas in Yemen have high flood susceptibility, with 3 million people living in flood prone areas. Flood impacts have historically been most severe in IDP camps of which 571 (approx. 603,227 site residents) out of 2,301 have been classified as "high flood hazard" risk in a February 2023 analysis by REACH and the CCCM cluster. A total of 67 per cent of IDP sites classified as high flood hazard are managed by CCCM partners covering 83 per cent of the high risk population. The proposed pilot aims to cover select IDP sites noting the most severe flood impact on them and also noting that the other preparedness measures at country level covering IDP and non-IDP locations.

While high flood hazard IDP sites are located in 20 of Yemen's 22 governorates, risk exposure differs significantly, not just in terms of the number of managed sites, but even more significantly in terms of at-risk population. According to the February 2023 analysis by REACH and the CCCM cluster, more than 60 per cent of IDP living in high flood hazard sites reside either in Marib or Hajjah and within that they are concentrated in three districts (Marib city, Marib and Abs) across two governorates. In these two governorates, available data shows a high concentration of the high risk population at district level: in Marib, 94 per cent of people are located in just two districts (Marib City 64 per cent; Marib 30 per cent) whereas 55 per cent of people in Hajjah are located in Abs district.

For the pilot in Yemen, OCHA therefore proposes to adopt an area-based approach, leaving humanitarian partners the flexibility to implement activities in the most vulnerable sites within select governorates in which trigger thresholds have been reached.



Vulnerability

Next to conflict and eviction, flooding is one of the major threats to IDP living in mostly substandard hosting sites. Inadequate or even hazardous shelter conditions are found in most camps, negatively impacting people's safety, dignity and self-reliance. In the 2023 HNO, 83 per cent of displaced people identified Shelter/NFI support as their priority need. Moreover, access to WASH and health services is inadequate or non-existent in over 90 per cent of

[23] See HC's Vision Paper for the Yemen Humanitarian Fund (July 2022)

sites, heightening exposure to disease outbreaks. The impact is even higher on the most vulnerable, including pregnant and lactating women, children, the elderly and people with disabilities.

The anticipatory action pilot in Yemen presents an opportunity to mitigate the outsized impacts of flooding on displaced populations. By bringing together experts from across the humanitarian community, the pilot seeks to provide timely assistance with a focus on populations that are especially vulnerable to the anticipated shock, prioritizing groups such as women, girls, persons with disabilities, and persons in need of protection assistance.

Humanitarian impact

In 2022, Yemen experienced one of the heaviest rainy seasons in recent history. Especially during the second half of the season, between July and September, the country was hit by heavy downpours, at nearly 300 per cent above normal rainfall for that timeframe. Flooding impacted around 80 per cent of the country, leaving 74,000 households in need across 175 districts and 18 governorates. Flooding caused destruction of property, farms and livelihoods, damage to critical infrastructure such as roads, water sources, sewage systems and shelters for internally displaced people (IDP) and, in some areas, human death. Field reports further indicate that flooding has moved unexploded ordinance to residential and agricultural areas, posing a grave risk to civilians, especially children. Flooding, like other climatic shocks, also heightens the risk of disease outbreaks while exacerbating food insecurity in a country where up to 19 million are already food insecure.

YHF extended support to floods affected communities in 2022, where 12 projects covered flood response activities. Around $ 1.2M was allocated and reprogrammed to add technical activities to respond to the needs of the affected women, men, boys and girls in the IDPs sites and host communities in the different locations in Yemen. YHF's flexible funding mechanism enabled the partners with the ongoing projects to add and revise the planned activities to include flood response assistance such as RRM kits, water desludging, non-food items, unconditional cash transfers, emergency shelter kits, rehabilitation and maintenance of shelters, and other needed activities to reduce the impact on the affected people.

Predictive capacity

Across Yemen humanitarian partners have documented 2,301 IDP sites in 22 governorates. Of these sites, 741 are reported as managed by humanitarian partners. In 2021, the CCCM sector initiated a flood monitoring/reporting system to report site-level impacts of flooding. In 2021 and 2022, 356 sites reported some level of flooding and impact.

While many factors influence flooding and its impact, rainfall accumulation is believed to be a critical driver of the timing of flood events. If a strong linkage can be made between historical rainfall and reported flood impact in the Yemeni context, rainfall accumulation quantities will be tested to understand what thresholds are most predictive of flood events. Currently, Climate Hazards Group InfraRed Precipitation with Station data (CHIRPS), which combines satellite observation data with local station data (Funk et al, 2014; Zhao and Ma, 2019) is the main data source under consideration for historical rainfall. In addition to the CCCM flood report database, historical satellite-based flood detection data is being evaluated to fill reporting gaps.

If a satisfactory threshold is determined using historical rainfall, then there will be a logical rationale to investigate rainfall forecast models to develop trigger thresholds. The selection of a rainfall forecast data source will depend on the implementing partners specified required lead times.

The trigger model will therefore notify partners of an increasing flood risk in the next few days and will also provide a recommended list of high-risk sites to be targeted. Because of the area-based approach adopted for this pilot, agencies will still have the flexibility to target specific sites according to the operational priorities and existing vulnerabilities.

Window of opportunity

Required lead times obtained from implementing partners will be used as the basis to define the window of opportunity. The lead times should specify the amount of time required between trigger activation and the initiation of the specified emergency programming. Rainfall forecast data will be evaluated using different lead times and accumulation windows to better investigate how chosen lead times might affect the activation of a trigger. Additionally, climate scientists will be consulted to understand if there is a recommended forecast model and or lead time for rainfall alert activations globally or regionally.

Implementation capacity

Yemen is a country with a Humanitarian response plan of 4.27 billion for 2022, of which was over 50 per cent funded and delivered. Humanitarian actors have significant capacity and expertise to implement lifesaving activities for a variety of shocks, including floods.

Planning for the anticipatory action initiative, including discussions of target areas and activity planning, has been supported by and closely coordinated with the clusters and humanitarian partners. Maintaining a coherent approach is crucial to ensuring that potential intersectoral activities in target location are planned/ implemented in a way that reduces/ mitigates the impact of flooding on at-risk communities.

Target IDP sites have been selected according to the following criteria (also see target locations section):

- **Risk score:** High risk score according to the 2023 CCCM flood hazard analysis
- **Proximity:** Located in the two target governorates of Marib and Hajjah, with the highest concentration of high-risk sites
- **Managed sites:** Sites manages by a CCCM partner

Implementing partners for this project will be selected according to their operational presence and readiness in the selected sites. The initial list of partners currently managing high-risk sites in Hajjah and Marib includes:

	Number of people living in high-risk sites							
Governorate Name	ACTED	DRC	IOM	NRC	PAH	RADF	SHS	YGUSSWP
Hajjah		27032				101434		22045
Marib	2774		109575	9315	6568		23630	

The final list of sites targeted will depend on the upcoming conversations with agencies and their operational capacity and readiness for this project.

Risks and challenges

- **Short window of opportunity**: It is likely that the trigger for this pilot may only provide agencies with a limited number of days of warning of impending floods. The Anticipatory Action framework will therefore need to prioritize activities that can be i) ready to go at a “moment’s notice” and ii) implemented/distributed within a very short time period.
- **Readiness and prepositioning:** The success of many anticipatory activities hinges on the degree to which partners are operationally ready and have sufficient prepositioned stocks at their proposal. Readiness and prepositioning measures have to be taken in advance to ensure that the anticipatory action plan can be implemented successfully.
- **Funding arrangements**: The YHF, with support from OCHA HQ, will need to adjust established review and allocation processes to ensure that in the case of an activation, funding is available to partners with as little delay as possible.

Anticipatory action elements

The objective of the pilot is to enable more effective timely and dignified collective humanitarian action ahead of severe flooding in pre-identified IDP sites in Yemen. Building on existing experience, structures and systems, OCHA is currently working on key elements of the anticipatory action pilot initiative, which are summarized below:

Trigger

The impact data reported by CCCM is used as the baseline to develop the AA trigger. Many of the flood events in this database are related to an excess of rain compared to the seasonal average rainfall levels. The trigger system will therefore leverage short and medium range rainfall forecasts to trigger AA.

The Centre for Humanitarian Data is currently evaluating the skills of different forecasts providers (ECMWF, UK Met Office, CHIRPS-GEFS etc.). The performance will strongly depend on the lead time and the locations selected. The current approach is making use of cumulative rainfall levels to trigger AA. The specific lead times and trigger structure will adapt to the operational needs as the action plan is finalized. The area-based triggers will be developed on final selection of locations for partners to ensure the triggers are met for individual sites before triggering AA.

Action Plan

An action plan with a concrete set of pre-agreed activities is being developed in coordination with clusters and relevant humanitarian partners. Given that the lead time to act ahead of predicted floods is relatively short, only the following types of activities that can be implemented (or at least initiated) prior to the predicted flood shock are being considered:

- **Cash and voucher assistance (CVA):** The aim of cash transfers is to address the estimated liquidity needs of at-risk households caused by the predicted shock. Depending on how far in advance cash transfers are made, households can either spend cash to mitigate the impact or to evacuate ahead of the shock or use funds immediately after the shock to address their most urgent needs.
- **Goods/in-kind assistance:** Given the short window of opportunity, whether in-kind assistance can be provided in an anticipatory manner (i.e., before the shock) primarily depends on the operational readiness of partners. To implement effectively, items must already be in stock (ideally warehoused close to the targeted areas), transportation arrangements must be in place, distribution points must be pre-identified, etc.
- **Services provision**: Similar to cash, the aim of services can either be to mitigate the expected impact or to put systems in place to ensure affected people have access to them immediately after to tend to their most critical needs. In other OCHA-supported anticipatory action initiatives, service provision has often included (but not been limited) to the deployment of rapid response teams and other experts.
- **Messaging/risk communication:** Early warning messages (especially in combination with other forms of anticipatory assistance) can help at-risk people make informed decisions on how to meet the anticipated shock on their own terms. For example, alarming at-risk people that a flood is imminent and giving them cash ideally allows them to consider evacuation or invest in shelter reinforcement.
- **Protection of community infrastructure:** This final bucket of assistance is the most context-specific. Whether it is possible to protect/reinforce community structures by, for example, applying sandbags is dependent on the context. Especially for camp settings, it should definitely be explored as an option.

For an initial overview of activities currently under discussion, please see activity planning excel sheet.

Target locations

OCHA and cluster system partners agreed to consider the following parameters for the selection:

- **Target population:** Partners agreed to focus on the highest risk population group. Flood impacts have historically been most severe for IDP populations living in mostly substandard hosting sites.
- **Site classification:** Partners agreed on populations in the highest risk hosting sites. As part of the 2023 Flood Hazard Analysis for IDP sites conducted by REACH and the CCCM cluster, 2,301 locations were assessed for flood risk and assigned a flood hazard score, mostly in reference to the likelihood of flooding in a given site based on historical events. 571 of the 2,301 locations have been classified with *high flood hazard.*
- **Site management:** Partners agreed to focus on sites that have a management and administration structure set up and maintained by a CCCM partner. Of the 571 high flood hazard locations, 382 are managed by a CCCM partner.
- **Limited scope:** In the context of the pilot, partners agreed to focus the initiative on a relatively limited number of people (planning figure: approx. 30,000).

Beyond these initial parameters, cluster partners further agreed to focus on sites with a high population density and to prioritize locations outside of city centers where less support from host communities and authorities can be expected. Partners further agreed to consider sites with access constraints.

OCHA additionally suggested to focus the first iteration of the pilot on just one or two areas that fit the above criteria. Initially, rather than choosing specific camps, it may be advisable to identify districts or even subdistricts for the pilot. Based on the identification of these areas, more analysis can be done on the flood susceptibility of camps within these areas.

Financing (to be finalized post discussion with HC and AB):

Financing, including a CBPF commitment to release agreed funds on a no-regrets basis for pre-agreed activities as soon as the trigger is reached, and by crowding in of other funding sources. CBPF project proposals will be part of the framework. This commitment is valid for 2 years from the endorsement of the framework.

Next steps/ actions
With select cluster, agree on final selection of governorates and locations while the HC and the YHF Advisory Board give go ahead for this pilot. Following that, OCHA together with clusters will work on partner selection with criteria elaborated in target location. The select partners will submit their proposals and on activation of trigger will roll out the pilot.

22.3.2. Guidance note on selecting target locations for the 2023 flood pilot

Guidance note on selecting target locations for the 2023 flood pilot

Drafted by: Christoph Baade – Anticipatory Action Specialist – OCHA CERF

Background: considerations for piloting anticipatory action

In the context of Yemen, anticipatory action presents an opportunity to complement and improve upon established processes to deal with the humanitarian impacts of seasonal, rain-induced flooding. Rather than responding once flood-related needs have manifested, anticipatory action uses forecasts to trigger pre-agreed actions that can mitigate a predicted crisis, effectively acting on risk and vulnerability.

While anticipatory action has the proven potential to improve the provision of aid, both in terms of timeliness and (cost-)effectiveness, its actual success hinges on a variety of context-specific factors, including, for example, the predictive strength of forecasts, the operational readiness of partners, or the availability of fast and flexible funding. To test the viability of the approach in new contexts, it is advisable to initially limit the scope and scale of an anticipatory action pilot. Based on the results, the scale of the pilot can then be expanded, and adjustments can be made as necessary.

Proposed geographical scope:

Considering that in 2022, floods and flash floods impacted approximately 80 per cent of the country, causing needs across 175 districts in 18 governorates, limiting the scope of the 2023 anticipatory action pilot for Yemen presents a key challenge.

Faced with this challenge, OCHA and cluster system partners initially agreed to consider the following parameters for the selection:

- **Target population:** Partners agreed to focus on the highest risk population group. Flood impacts have historically been most severe for IDP populations living in mostly substandard hosting sites.
- **Site classification:** Partners agreed on populations in the highest risk hosting sites. As part of the 2023 Flood Hazard Analysis for IDP sites conducted by REACH and the CCCM cluster, 2,301 locations were assessed for flood risk and assigned a flood hazard score, mostly in reference to the likelihood of flooding in a given site based on historical events. 571 of the 2,301 locations have been classified as *high flood hazard.*
- **Site management:** Partners agreed to focus on sites that have a management and administration structure set up and maintained by a CCCM partner. Of the 571 high flood hazard locations, 382 are managed by a CCM partner.
- **Limited scope:** In the context of the pilot, partners agreed to focus the initiative on no more than 30,000 people.[24]

Beyond these initial parameters, cluster partners further agreed to focus on sites with a high population density and to prioritize locations outside of city centers where les support from host communities and authorities can be expected. Partners further agreed to consider sites with access constraints.

Based on these initial criteria, in-country stakeholders from OCHA and clusters initially proposed 26 locations across 5 governorates and 10 districts.

Comments from the OCHA anticipatory action team

While the parameters and process of selecting priority locations for anticipatory action are useful, targeting locations across five governorates potentially presents operational challenges:

- **Trigger development:** Most likely, rainfall forecasts and historical flood thresholds will form the basis of the trigger. Given that flood thresholds can significantly vary from one location to another, the pilot would likely require multiple location-specific triggers (for example, one trigger per governorate).
- **Trigger monitoring/activation:** Forecasted (and actual) levels of rain may vary significantly across time and governorates. Whereas forecasted rain in one governorate may trigger anticipatory action, there may be no rain predicted for another governorate at that same time. This may result in partial or staggered activations

[24] This number may be adjusted based on available funding.

of the anticipatory action pilot, which presents challenges particularly in terms of financing arrangements but also with regard to coordination.

- **Workload** (in terms of preparation)**:** Anticipatory action for sudden onset shocks typically requires significant levels of pre-agreement between donors and implementing partners. Agreement on which partner does what ensures that funding can be released with as little delay as possible. Similar to the triggers, there is a risk that arrangements would need to be made for each governorate, thus requiring significantly more work.

Recommendation to in-country stakeholders:

N.B. The below recommendation is meant as a discussion starter as it does not factor in political considerations / constraints, among other factors. Based on experience

Given the potential challenges highlighted in the previous section and the limited time to operationalize ahead of the 2023 flood season, it is recommended to focus the first iteration of the pilot on just one or two areas that fit the criteria outlined on page 1. Initially, rather than choosing specific camps, it may be advisable to identify districts or even subdistricts for the pilot. Based on the identification of these areas, more analysis can be done on the flood susceptibility of camps Guidance note on activity planning in follow-up to ICCM discussion on 02 Feb 2023within these areas.

22.3.3. Guidance note on activity planning in follow-up to ICCM discussion on 02 Feb 2023

Guidance note on activity planning in follow-up to ICCM discussion on 02 Feb 2023

Drafted by: Christoph Baade – Anticipatory Action Specialist – OCHA CERF

Clarification: Preparedness vs. anticipatory action

- Anticipatory action ≠ preparedness: while the two terms are often used interchangeably, for the development of anticipatory action structures, it is important to distinguish them from each other.
- Anticipatory action builds on preparedness efforts but remains distinct from them, as anticipatory action efforts are always undertaken before a specific and imminent threat.[25]
- Preparedness aims to build the general capacities to manage future disasters based on a sound analysis of disaster risks, and includes such activities as the stockpiling of equipment and supplies, the development of arrangements for coordination, evacuation and public information sharing, and associated field exercises.[26]
- Anticipatory action encompasses time-critical activities implemented based on a pre-agreed signal indicating that a shock is imminent. Ideally, funding is pre-arranged and critical operational arrangements have been made to ensure that activities can be implemented in *the window of opportunity*[27] between the signal and shock onset.

Building towards an action plan: the crisis timeline

Developing a shock- and context-appropriate action plan requires a sound understanding of how a shock (e.g., a flood) unfolds in a given context. In this regard, developing a crisis timeline can be useful.

> *A crisis timeline aims to assess how the humanitarian crisis is likely to evolve once the shock occurs, the impact pathways and the consequences of the shock. The timeline also presents how humanitarian needs typically unfold, providing insight into how the consequences of a shock manifest themselves and when failures might occur, such as displacements and diseases. Development of the crisis timeline runs in parallel with developing the trigger mechanism.*[28]

Some key questions to consider when developing the crisis timeline include:

- **Impact:** Which sectors were affected in what ways during past flood shocks and what were the most pressing shock-induced needs?
- **Early Warning / Early Action:** In the past, were there any alerts indicating that a flood shock was imminent? If so, how far in advance of the floods were these alerts issued, and did you take any actions based on the warning?

[25] For more information, see Anticipatory action and cash transfers for rapid onset hazards (pp. 6-8)
[26] Definition adapted from the REACH Glossary of Early Action Terms (2022 ed.) (p. 23)
[27] Each potential action has a specific window of opportunity, outside of which an action loses much of its intended effect (i.e., mitigate the impact of the shock). Only those activities that can be carried out between the trigger and the shock should be chosen for anticipatory action.
[28] For more information, including key guiding questions, see the OCHA Anticipatory Action Toolkit (How to develop the AA Framework).

- **Operational constraints:** What are the biggest operational constraints you experienced during previous flood responses? Is it, for example, lack of funding, delays in decision-making (incl. waiting for government authorization to start implementing), access constraints, procurement and availability of items in-country, or transporting items and personnel to affected locations?

- **Lead time:** Consider a scenario in which a donor has transferred funding to you, which can only be spent based on an alert that floods are imminent in a certain location. How far in advance would that alert need to be issued for you to take meaningful action, and what activities would you want to implement in the *window of opportunity* between the alert and the shock onset.[29]

N.B. Of course, answers to the above questions are highly context-dependent and will progressively be specified as there is more clarity on the geographical scope, the setting (camp vs. non-camp), the funding envelope, partners' operational presence and capacity, etc.

Developing an action plan: what's possible for sudden-onset hazards?

What types of interventions can be considered for anticipatory action depends heavily on the hazard and the lead time. Whereas alerts for drought, a slow-onset disaster, are often issued months in advance, thus providing a long lead time to act in an anticipatory manner, for rapid onset events such as floods, alerts are often only issued a few days (even hours) ahead of the predicted shock, limiting the type of actions that can be taken to proactively protect lives and mitigate damage to livelihoods.[30]

Through its work on anticipatory action structures in other sudden-onset contexts, OCHA has identified five broad categories (*buckets*) of assistance that can be implemented in a short amount of time:

1. **Cash and voucher assistance (CVA):**[31] The aim of cash transfers is to address the estimated liquidity needs of at-risk households caused by the predicted shock. Depending on how far in advance cash transfers are made, households can either spend cash to mitigate the impact or to evacuate ahead of the shock or use funds immediately after the shock to address their most urgent needs.

   To assess the feasibility of cash for anticipatory action in Yemen, partners should consider whether at-risk people are already identified/registered to receive cash; whether markets are functional; what transfer modality would be feasible and most effective; how cash could be combined with early warning messaging, service provision and in-kind assistance.

   OCHA-supported anticipatory action structures have included unconditional multipurpose cash and conditional cash support for rapid shelter reinforcement or to cover transportation costs for people to access specialized services.

2. **Goods/in-kind assistance:** Given the short window of opportunity, whether in-kind assistance can be provided in an anticipatory manner (i.e., before the shock) primarily depends on the operational readiness of partners.[32] To implement effectively, items must already be in stock (ideally warehoused close to the targeted areas), transportation arrangements must be in place, distribution points must be pre-identified, etc. Below are some examples of anticipatory in-kind assistance from Bangladesh, Nepal and the Philippines:

   - Provision of safe storage drums to protect grains, seeds, documents, and other assets.
   - Provision of livestock supplementary feed.
   - Distribution of water purification tablets and anti-parasite medicines for animals.
   - Distribution of dignity kits, clean delivery kits and shelter strengthening kits.
   - Distribution and tracking of nutrition supplies and commodities for health facilities.

3. **Services provision:** Similar to cash, the aim of services can either be to mitigate the expected impact or to put systems in place to ensure affected people have access to them immediately after to tend to their most critical needs.[33] In other OCHA-supported anticipatory action initiatives, service provision has often included (but not been limited) to the deployment of rapid response teams and other experts.

   - Distribution of modular tents to evacuation centres with pre-emptively evacuated people.
   - Provision of storage space for agricultural equipment at specific sites.
   - Activation of child protection help desks and help lines
   - Water quality monitoring and water treatment (with pre-positioned supplies).
   - Equipping of health facilities to provide SRH services

[29] Feedback on this specific question helps trigger development experts weigh the trade-offs between considering a higher-certainty signal closer to the shock (e.g., 2-3 days in advance) or a signal further in advance with less predictive certainty.
[30] For more information, see Anticipatory action and cash transfers for rapid onset hazards (the 'actions', pp. 7-9)
[31] For a comprehensive overview of cash's application for anticipatory action, including guidance on how to effectively incorporate cash into AA action plans, see Anticipatory action and cash transfers for rapid onset hazards
[32] To ensure partners are operationally ready to distribute items, OCHA has funded limited readiness activities based on a trigger 7-10 days in advance of a flood shock. For an example, see Bangladesh Anticipatory Action Framework Summary Two-Pager
[33] Service provision necessarily *blends* anticipatory action and early response. With many services, it makes no sense to provide them exclusively before the shock and not in the days or weeks after.

- Deployment of gender advisor and community psychosocial workers.

4. **Messaging/risk communication:** Early warning messages (especially in combination with other forms of anticipatory assistance) can help at-risk people make informed decisions on how to meet the anticipated shock on their own terms. For example, alarming at-risk people that a flood is imminent and giving them cash ideally allows them to consider evacuation or invest in shelter reinforcement.
5. **Protection of community infrastructure:** This final *bucket* of assistance is the most context-specific. Whether it is possible to protect/reinforce community structures by, for example, applying sandbags is dependent on the context. Especially for camp settings, it should definitely be explored as an option.

N.B. The information and examples provided in this section should not be seen as restrictive. Instead, they outline what has been done in other contexts, which is not to imply that they are necessarily appropriate for the Yemen context.

Contact us

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Further information

- More information on OCHA's involvement with Anticipatory Action can be found here.
- Practical guidance for colleagues who work on anticipatory action frameworks can be found here.

22.4. List of Parks and Other Protected Areas[34]

National Parks
Jabal Bura valley forest
Marine National Parks
Zuqur islands
Marine Parks
Ras Isa
Nature Reserves
Hamaderoh
Ma'alih
Muqadrihon
Shihali
Reserves
Dhamar Montane Plains Mahjur
Traditional Reserve
Eastern region (Mahrah)
Jabal al-Ara'is
Kumran islands
Other Protected Areas
Al Kadan, Dobera Parkland, Tihamah
Al Khawkhah
Al Khawkhah - Bab el Mandab
Al Luhayyah region
Al Mahwit woods
Al Manzar – Ghilayfiqah
Al Mujaylis - Al Fazzah lagoons
Al Mukha
Al Qutay-Jabal Bura', Tihamah
Al Urj – Hodeidah
Al Zuhrah
Almahr
Bahr Ibn Abbas
Bura Community Protected Area
Dhubab
Hidhran marshes
Humar island
Isa Peninsula
Jabal an Nabi Shu'ayb
Jabal Lawz forest
Jabal Sabir-Wadi Thabad wadis
Khawr north of Hab
Marsa al Fajrah - Ar Ru'aya
Mocha/Bab al Mandib Tihama plain area
Nishtun
North Al Mawahij
North Ibn Abbas
Oreste point
Perim Isles
Qatabah - Abu Zahr
Ra's Abu Quizara
Ra's Katanib island
Shibam/Kawkaban escarpment
Socotra island
South Al Mukha - South Dhubab
South Yakhtul - North Al Mukha

[34] Source: Parks.It - http://www.parks.it/world/YE/Eindex.html.

Ta'izz woods
Ukban Island
Uqban (Ukban) islands
Wadi Duba forest
Wadi Hudayn (Bura) forest
Wadi Mawr, Tihamah
Wadi Rima estuary
Wadi Siham
Wadi Suq'Abs, Tihamah
Wadi Zabid catchment community protected area
Zubayr islands

22.5. Rapid Environmental Assessment Report

Yemen Shelter Cluster
Yemen Rapid On-line Environmental Impact Assessment
Initial Results[35]

Contents

Introduction

ECHO is funding the "greening" of shelter and settlements assistance through a grant to the Global Shelter Cluster via UNHCR. WWF/US has been commissioned to assist five country-level Shelter Clusters in developing Environmental Profiles. These Profiles are intended to bring together all critical environment-related information which would be of use on providing post disaster or crisis response shelter in a country.

The Yemen Shelter Cluster was selected as one of the countries to pilot development of the Environment Profiles. A core part of a Profile is an assessment of environmental issues linked to shelter and settlements assistance. This assessment is used to develop an environmental management plan to address the issues identified. The Rapid Environmental Impact Assessment in Disasters (REA), described in Box 1, was used to develop an online assessment form covered in this report.

This rapid online environmental impact assessment was conducted by Yemen Shelter Cluster partners in late 2022. The results of the assessment will

- Be discussed with key shelter sector stakeholders for revision as needed and,
- Used in identifying the issues which need to be covered in the environmental management plan. The assessment process is described in more detail at right.

In general, a Profile is developed before a disaster or crisis and used to support a response. In the case of Yemen, the Profile is being developed during the crisis with results linked to ongoing operations. The assessment only covers the environmental aspects of the humanitarian assistance provided. A separate assessment is needed to consider the environmental footprint of humanitarian assistance operations themselves.[36]

The following sections provide a general overview of these results and summaries of the individual responses to each question collected through the online assessment. Information directly identifying respondents is not included.

The assessment results indicate the general situation for Yemen as a whole. These results can be reviewed at the sub-national level to develop a localized understanding of humanitarian-environment linkages in the absence of doing separate sub-national assessment.

[35] Prepared by C. Kelly, Disaster and Environment Advisor, WWF/US, ECHO-funded GSC Greening project, havedisastercallkelly@gmail.com.

[36] Where a Profile is developed before a response, an assessment of the environmental footprint of the humanitarian response is not possible given a lack of knowledge of the nature of the humanitarian response. In the case of Yemen, a complementary humanitarian operations environmental impact assessment is warranted to complement the country-focused nature of the Profile document.

Box 1
Rapid Online Environmental Impact Assessment Methodology

The Yemen Rapid Online Environmental Impact Assessment (REA) is based on a Rapid Environmental Impact Assessment in Disasters methodology developed for use in humanitarian response. The method is set out in the Guidelines for Rapid Environmental Impact Assessment in Disasters - Version 5, 2018. The REA process is conceptually based on a normal environmental impact assessment approach but incorporates a recognition that detailed and conclusive results are rarely available during a disaster or crisis and a *Good Enough* approach is acceptable in a humanitarian response.

For the online assessment, elements of Modules 1 to 4 were converted into questions and translated into Arabic. Kobo software was used to conduct the assessment in Arabic and English. Following the survey, the Yemen Cluster consolidated the results into on Excel spreadsheet, from which the information in this report was extracted.

Results Summary

A ranking of issues identified in the assessed, REA methodology (see Box 1), is provided in the following table. The ranking is based on the response frequency among the total responses for each question. For instance, if in the case of the question on self-sufficiency, four respondents indicated that sufficiency was high, eight indicated that sufficiency was moderate and 22 responded that it was low. As a result, low self-sufficiency, with a rank of 22, is carried forward to the summary table. The exception is for hazards, which are ranked based on the number of respondents indicated a hazard was an issue for humanitarian response in Yemen.

The ranking of issues will be followed by a rating process, focusing whether the issues are considered to be immediately life threatening, welfare threatening or threatening to the environmental, but not threatening to life or welfare. This process will reorder the issues listed in the Results Summary below focus on issues which are most threatening to the basic needs of the crisis-affected population. From this ranking, attention turns to the life threatening issues and development of an Environmental Management and Monitoring Plan (EMM). See the REA methodology for more details on this process and additional steps involved.

Box 2
Environmental Issues and Gender

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 the 31 responses 18 indicated that harm could occur “In some cases” while 13 indicated that harm could occur “In most cases”.

In terms of who could be most at risk of harm, the 31 respondents indicated the following:

- Women: 30
- Girls: 30
- Boys: 27
- Men: 13

Yemen Online REA Issues Ranking		
Topic	**Criteria**	**Score**
Need for water is being met	Lesser part of needs being met	30
Basic need for food is being met	Lesser part of needs being met	30
Basic need for shelter is being met	Lesser part of needs being met	25
Self-sufficiency	Low, that is heavily reliant on the natural environment, humanitarian assistance and other sources.	29
Hazard	Floods	28
Basic need for energy being met	Lesser part of needs being met	27
Basic need for personal safety is being met	Lesser part of needs being met	27
Social solidarity	Not strong or weak, that is there are connections, but they are not strong or well established.	27
Current livelihood options	There are few to no options, that is, households have limited or no means to meet needs and are heavily reliant on assistance and accessing natural resources.	27
Basic need for health care is being met	Lesser part of needs being met	26
Basic needs for livelihoods is being met	Lesser part of needs being met	26

Box 3
Why does the Online Assessment cover more than shelter?

The Yemen rapid online environmental impact assessment covers a range of topics in addition to those specific to shelter or NFI materials. This broad approach to considering the environmental impact of a crisis is based on three points:

1. Under the settlements (or area-based) approach, a shelter is more than a piece of plastic. A shelter provides the location of a range of social and economic activities. If basic needs related to these activities are not met, then the affected population may be placed in a situation of unstainable exploitation of the environment. For instance, if the affected are provided shelter assistance to temporarily reside in a location without water or latrines or without access to fuel for cooking, this provision of shelter materials does not meet humanitarian objectives, or basic human needs.
2. Non-food items are intended to replace items lost by affected populations and to off-set the need to purchase these items from personal resources. However, providing water pails where there is insufficient water or fuel-efficient stoves where the is insufficient fuel, will lead to unmet needs on the part of the affected, possible damage to the environment and, in some cases, abandonment of the shelter site.
3. Successful shelter assistance depends on more than providing shelter and NFI materials and requires understanding the local context in which this assistance is needed, and provided. Understanding this beyond-materials perspective is inherently environmental and includes possible sources of conflict over land use, conflicting uses of natural resources (e.g., between farmers and herders) as well as access to natural resources to sustain basic human needs.

The Yemen Online Rapid Environmental Impact Assessment provides a broad, strategic, perspective on the humanitarian response. The results identify issues related to how and what assistance is provided at the project level, where tools such as NEAT+ can be applied.

Expectations	High the affected population expect most of their needs to be met from external assistance.	24
Ability to safely manage waste	Poor, that is, waste is poorly managed and causes negative environmental impacts.	24
Hazard	Fire in camps	24
Concentration	Low, that is households are more than 10 meters from each other.	22
Basic need for domestic resources is being met	Lesser part of needs being met	22
Basic need for transport being met	Lesser part of needs being met	22
Availability of natural resources	Poor, that is, damage is occurring to the natural environment.	20
Number affected by the disaster or crisis	Hundreds to thousands	19
Hazard	High winds	18
Hazard	Disease affecting people	18
Hazard	Sand and dust storms	16
Distance affected population have moved	They are far from their point of origin, that is to say more than one day travel by car from their point of origin.	16
Hazard	Drought	13
Hazard	Disease affecting animals	12
Hazard	Snow/Winter Weather	11
Hazard	Pest affecting crops, e.g., locusts, Army Worms, etc.	10
Hazard	Other	10
Hazard	Pollution from industrial sources	8
Hazard	Landslides and similar events	7
Hazard	Earthquakes	2
Hazard	Wildfire outside camps, e.g., affecting crops	1

Responses to Individual Assessment Questions[37]
The sequencing numbering of questions from the survey is kept to aid in comparison of results

[37] Unless noted, there were 9 respondents to each question.

Context Overview

Which sector do you work in?

Sector	# of Responses
Shelter/NFI	24
WASH	2
Livelihoods	3
Camp Management	1
Coordination	2
Other	2

Please indicate the locations for which you are completing this survey. Write "Countrywide" if the survey is being completed for the whole country, that is, not for a specific location.

- Countrywide (16)
- Aden, Lahj, Abyan, Taiz and Al-Hodeidah
- Al-Ma'afer - Jabal Habashi - Al-Mawasit
- Hajjah, Hodeidahm Ibb, Taiz, Al-Dhalea
- Khanfar District
- Marib and Al-Jawf
- Saada (2)
- Sa'ada and Al-Jawf Governorates
- Taiz city only
- Taiz Taiz (5)
- Taiz south area Yemen
- Taizz city and Maqbanah
- Taiz city - Salh district
- Taiz Gov.
- Taiz. Ibb

What are the sources of information which you are using to complete the survey? You can select more than one.

Response	#
My own observations	23
Field assessment reports	30
Work on projects in addition to assessments	27
Conversations with affected populations	19
Reports from the field received, but I have not gone to the field	5
NEAT+	3
Other environmental assessment tools	6
Other	3

Please indicate the types of disasters or crisis covered by the assessment. Multiple responses are possible.

Response	#
Armed Conflict	31
Flooding	25
Earthquake	3
Cyclone	6
Other	7

Factors Influencing Environmental Impacts

This section considers the broader social and environmental factors which can influence, positively or negatively, the environmental impacts associated with a disaster or crisis. This information is useful in understanding the systemic aspects of possible negative humanitarian impacts. The resulting analysis provides input to programmatic decisions on how to shape assistance to reduce negative environmental impacts.

How many people have been affected by the disaster or crisis you are assessing? Explanation: This question refers to the number of people currently directly affected by the crisis or disaster.

Response	#
Less than a hundred	0
Hundreds	0
Hundreds to thousands	19
Tens of thousands or more	15

What is the concentration of the affected population?

Explanation: The more concentrated the affected population, the greater possibility for damage to the environment.

Response	#
Low, that is households are more than 10 meters from each other.	4
Moderate, that is households are more than 2 meters but less than 10 meters from each other.	8
High, that is households are living within 2 meters or less of each other.	22

How far have the affected populations moved in an average due to the crisis?
Explanation: Affected people who have moved far from their normal homes are likely to have less access to natural resources and normal livelihood support systems. This may result in damage to the natural environment.

Response	#
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.	9
They are not close but not far, that is to say more than 6 hours to a day travel by car from their point of origin.	9
They are far from their point of origin, that is to say more than one day travel by car from their point of origin.	16

How self-sufficient are the affected population? Explanation: More self-sufficient populations are less likely to place unstainable demands on natural resources or humanitarian assistance.

Response	#
High, that is meeting all or most of their own needs from natural resources	0
Neither low or high, that is meeting a good part of their needs from natural resources but also reliance on humanitarian assistance and other sources.	5
Low, that is heavily reliant on the natural environment, humanitarian assistance and other sources.	29

What is the social solidarity between the affected population and local population? Explanation: Strong social solidarity is expected to reduce the likely of conflict over environmental resources, e.g., pasture, water, land for crops, etc.

Response	#
Strong, that is the groups have pre-crisis cultural and social connections.	4
Not strong or weak, that is there are connections, but they are not strong or well established.	27
Weak, that is limited or no social or cultural connections.	3

What are the current livelihood options available to the affected populations?
Explanation: More livelihood options are expected to reduce demand on natural resources to meet basic needs.

Responses	#
There are many options, that is all households have a variety of ways to meet their needs.	1
There are some options, that is, while households may have limited options, they are able to meet some of their needs.	6
There are few to no options, that is, households have limited or no means to meet needs and are heavily reliant on assistance and accessing natural resources.	27

What are the expectations of the affected populations in terms of external assistance? Explanation: A greater expectation of external assistance (i.e., humanitarian, charity, community) can lead to tensions over the level of assistance provided and recourse to the natural environment when the expected assistance is not provided.

Responses	#
Low that is most of the affected population do not need or expect to receive external assistance.	2
Neither low or high, that is the affected population expects external assistance but also has other ways to meet needs.	8
High the affected population expect most of their needs to be met from external assistance.	24

What is the availability of natural resources to meet basic needs without damaging the environment?
Explanation: Natural resources include water, wood and branches from forests and brush lands (e.g., for cooking or construction), grass (e.g., used for construction) soil for constructing buildings and other resources taken directly from the environment. Over demand on the natural environment will lead to environmental damage.

Responses	#
Good, that is, there is not damage to the environment.	2
Fair, that is, there is a risk of damage to the environment but damage has not yet occurred.	12
Poor, that is, damage is occurring to the natural environment.	20

How would you rate the ability of the affected population to safely manage waste (i.e., household waste, shelter or construction solid waste, debris waste)?
Explanation: An inability to safely manage waste will lead to negative impacts on the environment.

Responses	#
Good to Excellent, that is, waste is safely managed.	1
Fair, that is, waste is managed, but the process can be improved.	9
Poor, that is, waste is poorly managed and causes negative environmental impacts.	24

Are activities of men, women, girls or boys linked to the environment potentially subjecting them to physical harm? Explanation: Harvesting natural resources (e.g., firewood) can place individuals at risk of

personal harm. Managing how resources are harvested can reduce risks and possible damage to the natural **environment.**

Responses	#
No	3
In some cases	18
In many cases	13

If you answer In some cases or In many cases above, please indicate who might be affected? Multiple choices can be made. Explanation: Identified who may be at risk is useful in targeting assistance to reduce these risks.

Responses	#
Women	30
Boys	27
Girls	30
Men	14
I am skipping this question as I answered “No” above.	3

The Presence of Natural Hazards.
This section helps identify which natural hazards are likely to impact those affected by the crisis or disaster. We find that events like floods or drought can occur during other disasters or crisis. The results of this section help anticipate these events so that their potential environmental impacts can be considered in planning and preparedness.

Please indicate which of the following natural hazards affect the locations covered by the survey. More than one hazard can be selected.

Responses	#
Floods	28
Drought	13
Fire in camps	24
Wildfire outside camps, e.g., affecting crops	1
Earthquakes	2
Landslides and similar events	7
High winds	18
Snow/Winter Weather	11
Heat wave	0
Sand and dust storms	16
Disease affecting people	18
Disease affecting animals	12
Pest affecting crops, e.g., locusts, Army Worms, etc.	10
Pollution from industrial sources	8
Other	10

Level of Basic Needs Met
This section considers the level at which basic needs are being met as part of the household or external assistance efforts. Experience indicates that when basic needs are not being met there is an increased likelihood that the affected people will turn to the natural environment to meet needs and that this can result in avoidable environmental damage. (See Annex A for additional details.)

How would you rate the level at which the basic need for water is being met for the affected population?

Responses	#
None being met at all	1
Lesser part of needs being met	30
Greater part of needs being met	3
Needs are largely met	0
Needs are completely met	0

How would you rate the level at which the basic need for food is being met for the affected population?

Response	#
Not being met at all	2
Lesser part of needs being met	30
Greater part of needs being met	2
Needs are largely met	0
Needs are completely met	0

How would you rate the level at which the basic need for shelter is being met for the affected population?

Response	#
Not being met at all	2
Lesser part of needs being met	25
Greater part of needs being met	6
Needs are largely met	1
Needs are completely met	0

How would you rate the level at which the basic need for personal safety is being met for the affected population?

Response	#
Not being met at all	3
Lesser part of needs being met	27
Greater part of needs being met	4
Needs are largely met	0
Needs are completely met	0

How would you rate the level at which the basic need for health care is being met for the affected population?

Response	#
Not being met at all	8
Lesser part of needs being met	26
Greater part of needs being met	0
Needs are largely met	0
Needs are completely met	0

How would you rate the level at which the basic need for energy (e.g., cooking, heating, lighting, etc.) is being met for the affected population?

Response	#
Not being met at all	6
Lesser part of needs being met	27
Greater part of needs being met	1
Needs are largely met	0
Needs are completely met	0

How would you rate the level at which the basic need for domestic resources (non-food items and clothing) is being met for the affected population?

Response	#
Not being met at all	4
Lesser part of needs being met	22
Greater part of needs being met	7
Needs are largely met	1
Needs are completely met	0

How would you rate the level at which the basic need for transport to services, work, markets and natural resources are being met for the affected population?

Response	#
Not being met at all	9
Lesser part of needs being met	22
Greater part of needs being met	3
Needs are largely met	0
Needs are completely met	0

How would you rate the level at which the basic need for livelihoods is being met for the affected population?

Response	#
Not being met at all	7
Lesser part of needs being met	26
Greater part of needs being met	1
Needs are largely met	0
Needs are completely met	0

Closing
Thank you for taking the time to complete the survey. Please feel free to add any comments below.

- Thousands of families in Abyan Gov. are waiting your humanitarian support as soon as possible so please do be late.
- Single use plastic bags are a scourge on the landscape in Yemen. These bags are used for everything from daily grocery shopping, cooked food 'take-away', Khat, etc...
- Yemen's environment is suffering as a result of the prolonged crisis on top of pre-existing annual risks of flooding, sandstorms and drought. Currently experiencing a surge in deforestation & desertification. Fuel crisis is driving demand for charcoal & firewood.
- Yemen shelter cluster promoting the use of environmental best practice in shelter design & supporting flood mitigation measures.
- The camps are in need of new camps as a result of the deterioration of the previous shelter materials
- The camps need more productive training programs, such as handicrafts or livelihood projects.
- What is the level of safety for humanitarian workers in the field, especially outside the city (the valley)?
    - Low
    - Average
    - High
- There is absence and limited access at IDPs sites of 90%.

Annex A – Unmet Needs
It is also important to note that there can be a link between specific unmet needs, for instance where a lack of adequate shelter leads to harvesting more fuel wood for sale to fund improvement to shelters. The results of this section are also useful in pinpointing where additional assistance can be targeted to reduce unmet needs.

Each question on basic needs uses the same five responses so that the level of needs met or not met can be compared. In rating the level of needs met, consider the following:
- Not being met at all means that the affected population has no access to resources from any source to meet their needs.
- Lesser part of needs being met means that the affected population has limited access to resources from any source to meet their needs and there are significant gaps in covering the needs.
- Greater part of needs being met means that most of the needs are met, but there are still important gaps.
- Needs largely met means that there are no significant gaps on the needs being met.
- Needs are completely met means that there are no gaps in needs and the affected populations' minimum standards for a need are fully covered.

The definition of basic needs should be based on Sphere Standards or other standards established for the disaster or crisis response. Note that energy and transport are included as they are usually integral to meeting basic needs.

22.6. Rapid Environmental Screening

Technical Note
Rapid Environment Screening of Humanitarian Projects

Introduction
Effective humanitarian assistance requires environmental issues be considered in project design and implementation. Due to concerns that normal assessment procedures will delay immediate lifesaving assistance, standard environmental assessment are not normally done for humanitarian assistance projects. This note provides a rapid alternative environmental screening process which is designed for humanitarian operations.

Environmental Screening at Project Proposal Stage
NEAT+ tools can be used to assess some aspects of environmental impacts of humanitarian projects. However, the use of these or similar tools is not universally required for humanitarian projects.

Further, in keeping with the underlying concept of environmental impact assessment, the possible environmental impact of a project should be assessed after the design is complete to identify whether any specific environmental impacts have been missed. This post-design screening is critical in assuring that affected or neighboring populations are not harmed by the environmental impacts of the propose humanitarian aid.

Rapid Environmental Screening Process

The parameters for a rapid screening process are that it should be:

1. Rapid, and accept a trade-off between a high level of accuracy and a quick review.
2. Based on information in a proposal and not require additional information collection or analysis.
3. Reflect humanitarian standards and principles.

The following table incorporates these parameters into a simple question-based checklist. The table is drawn from the Rapid Environmental Impact Assessment process which provided core content for the NEAT+ tools.

The table focuses on activities which are likely to take place as part of humanitarian operations. Activities such as building new dams or large-scale construction projects would need a more elaborate screening and assessment process and are not appropriate for this rapid screening process.

Using the Environmental Screening Table

Four steps should be followed in using the environmental screening table:

1. The table below should be reviewed and any questions which are not appropriate for the project being screened should be removed.
2. For the remaining questions, if the answer to a question is yes, based solely on the information provided in a project proposal, then a check should be placed in the second column.
3. For questions where the answer is “no” or “don’t know”, that is information in the project document does not specifically indicate a “yes” answer, the second column should be left blank. If there is any doubt about the answer to a question, it should be left blank.
4. Once all the questions have been answered, those without a check mark should be referred back to the party designing the project for further consideration. In some cases, these “no” or “don’t know” questions may not require further action as they may involve activities outside the intended scope of the project. In other cases, changes to a project design may be justified. Any requirement for changes to a project based on the screening should be clearly set before the review process begins.

The number of checked (“yes”) answers compared to the total number of questions covered (i.e., excluding the questions which are removed in Step 1) can be used as a crude indication of the level at which the environment has been included in a project design. However, this is only a general perspective on possible environmental impact. In reality, the impact of one project component may be more or less than other components.

For example, a single unchecked question out of a total of 19 questions may have a more significant negative impact than all the other questions combined. As a result, the total number of checked answers should only be used as an indicator of the range of environmental factors considered in a proposal, not the absolute scale of environmental impact of a project.

#	Assessment Question	Check if explicitly addressed in the project description.

1	Has an environmental assessment been included in the project design?[38]	
2	Has an environmental impact management plan been included in the project?[39]	
3	Has an assessment of the carbon footprint of construction-related assistance been conducted?[40]	
4	Has the impact of local resource use for construction on the environment been assessed and addressed?	
5	Have housing, land and property (HLP) issues been assessed and addressed?	
6	Has demand for potable water been assessed?	
7	Has demand for water for irrigation and livestock been assessed?	
8	Are there plans for the safe disposal of fecal waste?	
9	Are there plans for the safe disposal of solid waste?	
10	Are there plans for the safe disposal of medical waste?	
11	Do construction plans (including for road or bridge repairs or new construction) include measures to avoid or reduce environmental impacts?	
12	Has the use of pesticides been avoided or minimized?	
13	If site planning is included in the project are there also plans for decommissioning the site?	
14	Has the impact of the demand for domestic resources on the environment been assessed and addressed?	
15	Has the demand for fuel and impact on the environment been assessed and addressed?	
16	Have the risks from natural hazards been assessed and addressed?	
17	Has the risk of wildfire been assessed and addressed?	
18	Has the risk of structural fire been assessed and addressed?	
19	Has the impact of livelihood activities on the environment been assessed and addressed?	
20	Does the project include activities which will improve environmental conditions?	

[38] Environmental assessments are required as part of Sphere Shelter Standard 7 (applicable to all humanitarian assistance).
[39] Environmental management plans are a standard mechanism to ensure issues identified in an environmental assessment are addressed.
[40] The SMAC tool can be used to assess the carbon footprint of shelter materials.

22.7. NFI Kit Details

YEMEN | **NFI Kit Content, Specifications and Distribution Protocol**

Shelter Cluster Yemen
ShelterCluster.org
Coordinating Humanitarian Shelter

No	Item Description	Specifications	Photo	Distribution Protocol Per HH	Unit Cost (USD)	Total Cost (USD)
1	Blankets	Medium Thermal Dimensions: 1.5*2.0 m Compositions: polyester 100% Weight: 1.5-2KG		5	5.7	$28.5
		High Thermal Dimensions: 1.5*2.0 m Compositions: polyester 100% Weight: 4-5KG		5	7.7	$38.5
2	Mattresses	Dimensions: 1.7*0.9 m with a Thickness 10cm		5	15	$71.2
3	Kitchen Set	Composition: each kitchen set includes the following items: 1* 7 liters aluminum cooking pot with lid. 1* 5 liters aluminum pot with lid. 5* deep stainless-steel plates 5* stainless steel cups 5* stainless steel table spoons 1* kitchen knife with stainless steel blade 1* stainless steel serving spoon		1	21	$21.0
4	Bucket	Capacity: 17 liters Weight: 800 grams Manufacturing: made of plastic, with plastic lid to close and open, as well as strong plastic handle to carry the bucket		2	3.8	$7.6

5	Sleeping Mats	Dimensions: 1.8*0.9 m Composition: 100% synthetic yarns in a tightly wove		2	2.5	$5
6	Bed Sheets (Cotton)	Type: Bed Sheet Dimensions: 2.0 x 2.30m Compositions: Cotton Weight: 800 gram		3	7.1	$21.2
7	Summer clothing	Male Adult: Cotton pajama Female Adult: Cotton pajama Male Child: Cotton pajama Female Child: Cotton pajama Infant (under 2 years): light infant cotton blanket + cotton pajama		1	35	$35
8	Mosquito nets	Long Lasting Insecticidal Nets (LLIN's), treated with WHOPES (WHO Pesticide Evaluation Scheme) recommended insecticide, provide effective protection against mosquitoes and other insects, The specifications of LLIN depend of its material composition and as per WHO recommendation the most commonly used are made of 100 % Polyethylene (PE) or 100 % Polyester (PES). Rectangular mosquito net (180 cm length x 160 cm width x 150 cm height) +/ 5 %		3	2.1	$6.3
9	Thermos/Cooler	Item Definition: Water Cooler Container. Capacity: 8 liters Manufacturing: made of plastic, with plastic lid to close and open, as well as strong plastic handle to carry the water cooler container		1	23	$23

10	Local Sleeping mat	Local made sleeping mat made of Khazaf sheet hand crafted by Yemeni women from displaced and host community, Size diameter= 90cm		2	5.5	$11
11	Winter clothing	Male: Fleece pajamas, jacket, socks and shawl. Female: Fleece pajamas, socks, sweater and scarf. Children: Fleece pajamas, hat, sweater, gloves and socks. Infant (under 2 years): Fleece infant blanket, hat, pajamas and socks Infant (over 2 years): Fleece infant blanket, hat, pajamas and socks		1	75	$75
12	Solar Lump	**Sun-Bell Smart**, **LED type**: Samsung, **Materials:** ABS, PC, PP, Steel, Aluminum **Battery**: 7.5 Wh Li-ion NMC battery (2,200 mAh at 3.7V) **Life Span**: 4+ years (1500 Charge cycles), **Additional features:** Can charge mobiles, lights, etc.		1	35	$35
13	Cooking Stove	Cubical Yemeni Made local handcraft, made of chip-sum with fan in the side and opening in the top, with a Size of 24cm cylinder Hight		1	7	$7
					Total Cost:	**$385.3**

*Note: Household size is 7 for programming purposes. Distributions should be based on the actual number of family members.

#	Item Description	Specifications	Distribution Protocol Per HH	Unit Cost (USD)	Total Cost (USD)
1	Blankets	Medium Thermal Dimensions: 1.5*2.0 m Compositions: polyester 100% Weight: 1.5-2KG	7	5.7	$40
2	Mattresses	Dimensions: 1.7*0.9 m with a Thickness 10cm	7	15	$105
3	Kitchen Set	Composition: each kitchen set includes the following items: 1* 7 liters aluminum cooking pot with lid. 1* 5 liters aluminum pot with lid. 5* deep stainless-steel plates 5* stainless steel cups 5* stainless steel table spoons 1* kitchen knife with stainless steel blade 1* stainless steel serving spoon	1	21	$21
4	Water Bucket	Capacity: 17 liters Weight: 800 grams Manufacturing: made of plastic, with plastic lid to close and open, as well as strong plastic handle to carry the bucket	2	3.8	$8
5	Sleeping Mats	Dimensions: 1.8*0.9 m Composition: 100% synthetic yarns in a tightly wove	2	2.5	$5
				Total Cost:	**$179**

22.8. Durable Solutions Note

Key Points - Durable Solutions – Yemen– Shelter and Settlements –

This note outlines some key points to consider in designing and implementing durable shelter and settlements solutions for Yemen.

Policy

- The IASC guidance on durable solutions includes environment as a factor to be considered in planning and executing solutions.
- Consideration of the environment should be included in any durable solutions strategy and actions for Yemen.
- Durable solutions plans should consider shelter and settlements[41] as separate areas of attention.

Process

- Durable solution plans should include an assessment of environmental conditions at the expected destination of returns or at the location for non-returnees. This assessment should consider the linked ecological-social-economic impacts of return/remain options.
- Durable solution plans should receive an environmental review before implementation and follow a review-based environmental management plan during implementation. This is a requirement of any development project and may be done on a categorical basis – not for each return, but for specific types of return/remain situations.

Hazard Assessment and Risk Reduction

- Return/remain plans should include assessments of possible hazards which could impact populations and measures to reduce corresponding risks. This planning should be in addition to procedures included in the environmental review process.

Resources Requirements

- Resources needed for shelter and other settlements-related construction should be quantified and assessed with respect to the sources carrying capacity. “Resources” here means any substance taken from the environment (e.g., water, sand, soil, …) as well as resources imported to Yemen for use in construction.

Shelter Designs

- A core shelter structure approach should be followed. In this approach, a standard shelter frame design is defined with a variety of coverings used over time. The fame should be easy to assemble and, for durability, made of metal. The coverings can progress from plastic sheeting to metal, wood, earth or brick over time.
- The design of shelter and other buildings should consider the usable life of the structure, with a minimum life of 5 years.
- Shelter designs should consider climate – hot, warm or cold – in design and consider active and passive measures to ensure internal shelter temperatures are not less than 18C (for cold climates) or above 26C on average for warm or hot climates.[42]
- Shelter designs should provide for upgrading by the occupant.
- Building designs should be subject to at least a CO^2 assessment and, preferably, an environmental score card assessment.
- Cost calculations for core shelter structure and coverings should be based on expected life-of-use[43], CO^2 impact and ease of assembly. Cost calculations should be based on use-years and not compared on the basis of total cost.

Land, Property and Access to Natural Resources

- Land title should be clear before any support for relocation/remain is implemented.
- If clear and free land ownership is not possible, long term (minimum 10 year) lease arrangements should be completed.
- If lease arrangements are necessary, shelter designs should incorporate disassembly so that the shelter can be taken apart and moved when a is lease completed or for other reasons.

[41] For the purposes of this note, a settlements-based approach and area-based approach are similar.
[42] Maximum internal temperature should not exceed 32C for more than four hours.
[43] Defined as use-years, or the number of years a material can be expected to function without loss of purpose.

- Access to necessary natural resources (e.g., water, pasture, etc.) should be part of ownership or lease arrangements. This may require agreements with traditional authorities as well as defined resource management plans and committees.

Energy

- Minimum energy requirements for shelters and livelihoods, defined as sufficient energy to allow occupants to meet their basic needs, should be assessed during project design. This includes energy for heating, cooling, cooking, lighting, security, livelihoods activities and social/educational activities.
- Sources of energy to meet minimum defined needs should be identified and demand on local sources assessed.
- All sources of energy which are to be used should not over-exploit local resources.
- Assessments of energy needs and sources should consider gender.

Waste Management

- Plans for waste management should be part of the settlements component of the return/remain plans.
- Waste management plans should incorporate reuse and repurposing, to support livelihoods and reduce environmental impacts. These plans should include, for instance, repurposing plastic sheeting and other materials as they reach the end of their functional life.

Livelihoods

- Livelihoods should be considered in the design of shelters and settlement and the demand for resources and energy and generation of waste.
- Livelihoods activities should not create hazards or lead to environmental damage.

Settlements Requirements

- Settlement design should consider environmental impacts, requirements to support resident population and growth over time.[44]
- Settlements should not be located where they can be negatively affected by natural hazards, if possible. If natural hazard threats are unavoidable, measures to reduce this threat to acceptable levels should be implemented.
- Settlement plans should include actions to improve environmental conditions, including reducing threats from hazards and moderating climatic conditions, e.g., providing shade, grassy areas, etc.

[44] Guidance on environment-based settlement design is available from Green Recovery and Reconstruction Toolkit (GRRT) Module 4 – Site Selection and Development: https://sheltercluster.org/resources/documents/grrt-4-strategic-site-selection-and-development or https://envirodm.org/green-recovery/.

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INSTITUTIONS

For more information on the **Yemen Shelter Cluster** go to: https://sheltercluster.org/response/yemen

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