

Humanitarian Networks and Partnerships 2024

Scaling up Nature-based Solutions in Humanitarian Contexts: Technical Session Workshop Report, HNPW Geneva 2024



Background

Nature-based solutions (NbS) offer a vital strategy for integrating environmental considerations into humanitarian response. To deploy NbS within humanitarian contexts—whether in rapid-onset disasters, fragile environments, or protracted crises—we need collaborative multi-sectoral partnerships and enhanced resource mobilization. Bolstering capacities for NbS implementation, alongside advocacy and awareness initiatives, is key to harnessing the potential of nature in humanitarian action.

In 2023, Sphere, the International Union for the Conservation of Nature (IUCN), and the International Federation of Red Cross and Red Crescent Societies (IFRC) published [‘A Sphere Unpacked Guide: Nature-based Solutions for Climate Resilience in Humanitarian Action’](#).

On 8 May 2024, these partners jointly delivered a consultative session at Humanitarian Networks and Partnerships Week (HNPW) in Geneva. The session consisted of two parts:

- 1. Technical Session (9:00 - 10:30):** An interactive workshop focused on understanding and implementing NbS and Sphere standards within humanitarian contexts.
- 2. Panel Discussion (11:00 - 12:00):** A dynamic panel exploring strategies to scale up NbS in humanitarian action, featuring insights from leading experts in the field.

This document summarises the Technical Session workshop.

Workshop Objectives

The objectives of the workshop were to:

- increase understanding of Sphere standards
- increase understanding of Nature-based Solutions
- identify and demonstrate practical applications of NbS across different humanitarian scenarios
- foster exchange of knowledge and experiences amongst participants.

Participants

128 people registered to join the session on the HNPW platform.

25 people joined in-person.

56 people joined online.

Session Outline

- Introduction to Sphere standards (10 mins)
- Introduction to Nature-based Solutions (10 mins)
- Storytelling/visioning exercise around the Great Flood in China in 1931 (15 mins)
- Scenario and groupwork: incorporating NbS in humanitarian response (40 mins)
- Case studies presenting NbS in humanitarian response in different contexts (15 mins)

Please note that you can watch a full recording of the event on Sphere's YouTube channel [here](#).

You can download all PowerPoint presentations [here](#).

You can read a report on the second part of the event (Panel Discussion) [here](#).

Results of Group work

Participants (online and in person) were split into 4 groups. Each group was given the same disaster scenario and given 30 minutes to identify Nature-based Solutions they could incorporate in humanitarian response, across the disaster management cycle, focusing on WASH, Shelter, Food and Nutrition and Health.

A facilitator accompanied each group, encouraging them to share their experiences, as well as consult the Sphere Handbook and Sphere Unpacked Guide: Nature-based Solutions for Climate Resilience in Humanitarian Action.

You can find the facilitation guide for the Scenario and group work in Annex 2.

The tables below present the combined findings of both the online and in-person groups.

Results of groupwork: Nature based solutions to meet minimum standards in Shelter; WASH; Health; Food Security & Nutrition

	Disaster Risk Reduction (Preparedness)	Emergency Phase (Hours to days)	Early Recovery (Weeks to months)	New Protracted Crisis (Weeks to months)	Sustainable Reconstruction or Ongoing Protracted Crisis (Months to years)
Shelter	<p>Stabilise soil</p> <p>Identify the urban planning</p> <p>Localisation of settlement in line with government policy</p> <p>Strengthen existing structures</p> <p>Choose the appropriate location of public infrastructure in advance i.e., schools & public services</p> <p>Traditional building practices</p> <p>Multi-sectoral assessment –</p>	<p>Distribute Non Food Items that relate with Shelter items – looking into the Sphere standard on Shelter section; also introduce and considering NbS guidance in the distribution of materials i.e. Improve cooking stoves (ICS)</p> <p>Distribute eco construction materials and re-use and re-cycle materials as required; also incorporate an awareness-raising session on how to manage the waste from the distribution of NFIs</p>	<p>Retrofitting activities especially targeting the urgent public infrastructure i.e. schools, hospital and health services facilities, public market, etc</p> <p>For this section mainly the activities from the emergency phase will continued.</p> <p>Conduct impact assessment that engages the communities, local and national partners and the government</p>	<p>Retrofitting activities</p> <p>Plan for re-build of permanent shelter infrastructure as needed and depending on the scale of the emergencies.</p> <p>Analyse with community the geography of the area to determine safer areas for shelter and settlement.</p> <p>Consider proximity of housing to access to livelihood, water.</p>	<p>Visibility study</p> <p>Retrofitting and re-build permanently the public infrastructure – make it resilient construction, considering existing building codes by the government. Use the Build Back Better (BBB) approach</p> <p>Ensure the utilization of sustainable materials</p> <p>Eco DRR measures</p>

	<p>review the tools in advance to ensure shelter questions include environment lens</p> <p>ECO DRR measures</p>	<p>Propose eco-friendly electricity at camps (depends how prepared the community is prior to the disaster – i.e. solar panel use etc)</p> <p>Temporary solution accommodation, i.e., emergency shelter</p> <p>Bring an environmental lens/screening to impact assessment</p> <p>Work with environmental expert/team, local community, & government</p>		<p>Restore NbS agriculture, i.e., intercropping - livelihood; taking into account climate change</p> <p>Use the NbS guidance to inform design and implementation of programming, especially considering the utilization of clean and renewable energy at the settlement areas</p>	<p>Again some of the activities from the emergency – early recovery phase will continued until this phase as well</p> <p>Most importantly, engagement of local community, considering traditional practices as well as the government + documented best practices/</p> <p>Area based conservation. Identify the source or cause of the flood. Management of trees and water in the upstream.</p>
WASH	<p>Create buffer zone</p> <p>Reinforce flood-prone areas with flood barriers; drainage systems and flood-resilient sanitation</p>	<p>Need & impact assessment (multisectoral)</p> <p>Consult community and harness local capacities</p>	<p>Design & establish water points, toilets, taking in considerations for the climate</p>	<p>Ongoing</p>	<p>Ongoing, and same activities as preparedness phase</p>

	<p>designs.</p> <p>Reduce the impacts of riverine flooding; water detention structures like earth dams, sand dams, dykes can be constructed along the river</p> <p>Restore wetlands by planting flood resistant trees to store surface water and prevent flooding.</p> <p>Reinforce banks to prevent mudslides</p> <p>To reduce impacts of flash flooding, use bunds to reduce erosion and restore vegetation</p> <p>Implement watershed management practices to prevent soil erosion, sedimentation, and pollution of water sources.</p> <p>Plant natural species to purify water</p>	<p>and ecological knowledge</p> <p>Select environmental-friendly/biodegradable cleaning agents (hand wash, etc.) for distribution</p> <p>Promote rainwater harvesting systems, groundwater recharge techniques, and water conservation measures to enhance water availability.</p> <p>Engage & connect with stakeholders - ministry of health, authorities, community leaders etc., possibly military</p>	<p>Nature-Based Toilets; Innovative nature-based toilet designs, such as composting toilets or dry toilets, use natural processes to treat human waste without relying on water-base</p> <p>Conduct hygiene promotion campaigns focusing on handwashing with soap, safe water storage, food hygiene, and proper waste disposal.</p> <p>Engage local communities in WASH committees and decision-making processes related to sanitation and water management.</p> <p>Try to channel stagnant water</p>		
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	<p>Pathogen Removal: NbS such as constructed wetlands, natural filtration systems, and ecological sanitation processes help remove pathogens</p> <p>Provide training and capacity building for local authorities, health workers, and community leaders on WASH management, disaster preparedness, and response.</p> <p>Rainwater harvesting; natural filtration: sand or charcoal filters</p>				
Health	<p>Understand local practices & knowledge</p> <p>Build on previous experience</p> <p>Identify key stakeholders & experts</p> <p>Identifying environmental resources</p> <p>Assess capacity and risks</p>	<p>Assess basic needs</p> <p>Lifesaving</p> <p>Access to clean water that is environmentally friendly</p> <p>Natural sources? Coconuts?</p> <p>Locally sourced medicines?</p>	<p>Natural water filtration</p> <p>Mosquito nets</p> <p>Cooking fuels</p> <p>Solar-based energy towers</p> <p>Utilise underground cooling</p>		

		<p>Vaccination campaign</p> <p>Medical waste management</p> <p>Coord w/UNDAC</p> <p>Send trained local DRR teams, rescue teams, and aid teams.</p>			
Food Security & Nutrition	<p>Anticipatory Action stocks replenished</p> <p>Vulnerability assessment</p> <p>Integrate NbS ecosystem services (capacity of nature to be resilient)</p> <p>Strengthen ecosystem that provides protection e.g., coastal defences, reefs & mangrove swamps etc.</p> <p>Understand community adaptation measures</p> <p>Chose local foods available</p>	<p>Alert/warning systems</p> <p>Distribution of stocks</p> <p>Activate the Anticipatory Actions</p> <p>Cash and Voucher Based Assistance (CVA) \$</p> <p>Food spoilage e.g., solar panels & equipment</p> <p>People receive food assistance that ensures their survival, upholds their dignity, prevents the erosion of their assets and builds</p>	<p>Restore food & nutrition systems & production/storage</p> <p>Plant with certain species for food & nutrition benefits</p> <p>Choices about: species and practices to introduce</p> <p>food assistance may also be used to prevent people adopting negative coping mechanisms such as the sale of productive assets, over-exploitation of</p>	<p>Acknowledge the current challenges: Governance, violence & climate change</p> <p>Best stage for introducing new NbS</p> <p>Use of NbS & natural resources as entry point for opposing groups</p>	<p>Climate SMART & conservation Agriculture</p> <p>Permaculture</p> <p>Sustainable fishery production</p>

	Traditional ecological knowledge	resilience.	<p>natural resources</p> <p>Ensure that livelihood and food assistance strategies such as cash-based assistance do not exacerbate degradation; where possible offer incentives for environmental protect</p>		
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Water Supply and Hygiene

1. WASH (Water, Sanitation, and Hygiene Promotion):

The flooding has contaminated Seaview's water sources, increasing the risk of waterborne diseases. Access to safe drinking water and adequate sanitation facilities is crucial to prevent further health crises. The existing sanitation infrastructure has been damaged, worsening the situation. Promoting hygiene practices and ensuring access to clean water are essential for protecting the health and well-being of the community.

Rainwater harvesting:
Collecting rainwater from the surface for domestic use

Reinforce flood-prone areas with flood barriers, drainage systems, and flood-resilient sanitation designs

To reduce the impacts of riverine flooding, water detention structures like earth dams, sand dams, dykes can be constructed along the river

Restoration of wetlands: This can be done by planting flood resistant trees. This can store surface water and prevent flooding.

Rainwater harvesting:
Natural Filtration System.

Use of local/traditional knowledge and materials for response measures.

Water Quality Improvement is implementing NBS like rainwater harvesting, green infrastructure, and soil conservation practices helps improve overall water quality.

Pathogen Removal:
NBS such as constructed wetlands, natural filtration systems, and ecological sanitation processes help remove pathogens

In my opinion, you have to start from the problem, we have changed the climate a little and the sanctions are more severe for the communities. And then we can find small solutions based on nature. :)

limits run-off with nature-based solutions urbanisation

before the event of flooding, we can reinforce the banks to prevent landslides.
Plant natural species to purify water

To reduce the impacts of flash flooding, land use strategies such as use bunds to reduce erosion and restore vegetation

Restoration of wetlands: This can be done by planting flood resistant trees. This can store surface water and prevent flooding.

Implement watershed management practices to prevent soil erosion, sedimentation, and pollution of water sources.

Selection of environmental-friendly/biodegradable cleaning agents (hand wash, etc.) for distribution

I have mentioned this before. Promote rainwater harvesting systems, groundwater recharge techniques, and water conservation measures to enhance water availability.

Community Led Total Sanitation Systems

Use of sand or charcoal filters for physical and biological water treatment

Constructed wetlands for water remediation

Nature-Based Toilets,
Innovative nature-based toilet designs, such as composting toilets or dry toilets, use natural processes to treat human waste without relying on water-base

Engage local communities in WASH committees and decision-making processes related to sanitation and water management.

Conduct hygiene promotion campaigns focusing on handwashing with soap, safe water storage, food hygiene, and proper waste disposal.

Provide training and capacity building for local authorities, health workers, and community leaders on WASH management, disaster preparedness, and response.

“NbS and WASH” Jamboard from online session

Storytelling/visioning exercise photograph and text



The 1931 Yangtze River floods are considered to be one of the most extensive and damaging natural disasters of the twentieth century. As many as 50 million people were affected and an estimated 2 million people died as a result of the unprecedented flood.

The winter of 1930-1931 had been particularly harsh, leaving large deposits of snow and ice in the upper catchments of rivers. These frozen reservoirs melted in the spring and merged with unusually heavy rains, engorging rivers and lakes and raising the water table. In the summer China experienced an extremely powerful East Asian Monsoon. In an average year the Yangzi basin could expect two cyclonic storms; in 1931 there were seven in July alone. These storms dumped the equivalent of one and a half times the average annual volume of precipitation in a single month.

The neglected hydraulic defences that protected human communities living alongside the Yangzi and Huai Rivers stood little chance. The catastrophic flood that struck China in the summer of 1931 was neither a natural nor a human-made disaster – it was both.

The ultimate cause of the 1931 Central China Flood lay in the long-term interaction between human communities and river basins. Flooding was a perennial problem faced by those living in the Yangzi region. Agriculturalists exacerbated the natural risk of inundation by transforming the landscape. Excessive deforestation, wetland reclamation, and the over-extension of river dyke networks transformed regular flood pulses, which were an integral feature of the fluvial ecosystem, into destructive inundations, which wrought chaos upon human communities. Under favourable meteorological and political conditions, the human management of river systems gave rise to a thriving agricultural economy and stable society. During periods of excessive rainfall and poor hydraulic governance, however, rising water and neglected dykes allowed rivers and lakes to reclaim the plains that had been occupied by human beings.

On August 19th, 1931, water levels exceeded 16 meters, drowning 200,000 people. The immediate effects of the Yangtze floods transformed the plains of the Yangtze River Basin into an area resembling a Great Lake, with nothing but water all around. An area the size of France was turned into a lake.

While the immediate effects of the floods were disastrous, the secondary impacts were devastating. The floods completely washed away the region's rice paddies and agricultural fields, making an already impoverished nation more at risk of famine. In addition, the severity of the flood made a winter harvest impossible, proving starvation to be inevitable. Electricity was cut. Airports were closed, along with telegraphs and telephones.

So, this has set the scene. Wuhan is a famous city today and we all know why but 90 years ago it was in the headlines as an epicentre of the worst flood in recorded history (other than perhaps that of Noah). We are going to suspend our own reality for a second and we're going to go back and try to get a glimpse of what it must have been like.

With transport cut off and waters rising in your own home you start to consider your options. What things do you think of first? What do you think you would do to save your family, possessions, your pets to get ready for tough days ahead?

Answers

OK now I am going to ask you to join a story telling exercise which is better if you close your eyes. The problems began in the spring as river water began pouring into the streets and mingled with effluent disgorged from overflowing sewers. Soon the whole city was permeated by a horrific stench, which only grew worse under the heat of the sun. Rickshaw pullers and other menial workers had to wade through filthy water to earn a living, while customers perched precariously on the awnings.

As the floodwater crept higher, the streets were transformed into canals. Enterprising sampan owners – who ordinarily scraped a living by ferrying cargo around the harbours – began renting out their boats as water taxis. Those who could not afford the grossly inflated fares took to the water in a bizarre flotilla of improvised vessels: rafts made from doors, inflated goatskins and wooden bathtubs. Some people even emptied out coffins and used them as canoes.

The flood may have been a disaster for humans, but it created excellent ecological conditions for other species. Snakes, frogs and turtles swam into inundated homes. Some of these species were harmful to humans. The mosquitoes and water snails that thrived in vastly expanded territories caused epidemics of malaria and schistosomiasis.

In late July, the dykes that encircled Wuhan collapsed. The water that had been held back now cascaded into the city at terrifying speed. Flood waves scoured whole neighbourhoods from the landscape. Thousands of people living in houses constructed from timber and earth drowned or were buried alive. Those who survived salvaged what they could – a little food, religious artefacts, anything buoyant – and began their search for refuge.

Preferably keeping your eyes closed – can a few people call out what they are hearing, what sounds do you think there are ...

Answers

and the smells... ?

Answers

and how your body is reacting to constant interaction with water and no way of properly drying anything - how is this making you feel?

Answers

I will continue a bit longeras the value of dry space increased, hoteliers tripled their rates, packing rooms well beyond capacity. But buildings that were already compromised by water could not cope with this additional weight, and when one hotel collapsed in August, dozens of people sheltering inside were killed.

Electricity was not the only modern amenity lost to the flood. The telegraph office, telephone exchange and airport were all forced to close. And even if large stretches of the railway line had not washed away, it would have been impossible for trains to approach Wuhan as 30,000 refugees were now living on the embankment.

The sewerage system – a key emblem of hygienic modernity – emptied the bowels of the city into the streets. Soon residents were in the grip of an unprecedented health crisis. Thousands of people would succumb to dysentery, cholera and other waterborne diseases.

IDPs did not rely upon the assistance of benevolent elites. Like most people affected by disasters, they took responsibility for their own survival. In rural areas, those who had lost their farms foraged for aquatic plants such as lotus, water chestnuts, and wild rice. In Wuhan, people survived by catching fish swimming through the city streets.

The local military were convinced that communists were using the refugee crisis as a pretext to infiltrate Wuhan. They declared martial law and began patrolling the streets in sampans with mounted machine guns. Anyone suspected of looting or other subversive activities was executed on the spot. But even such draconian treatment could not quell the paranoia, and eventually soldiers expelled refugees from the city centre at gunpoint, relocating them to ill-prepared camps on the outskirts of Wuhan where thousands would die from disease.

"Words can hardly depict the feelings of oppression and poignant agony which filled me when I witnessed with my own eyes the scenes of death and desolation, of the excruciating sufferings of the injured and famished, and of those living torn asunder from their friends and relatives." - Chiang Kai-shek

So, for the last time with eyes still closed You are on the top floor of your house with the water occasionally reaching the floor and only being on a chair or table keeps you out of water. And this person who was there Chinag Kai-shek comes past your bedroom window in a boat and calls out to you, are you OK? Can I take you some place else? What do you reply?

Answers....

OK let's open our eyes if we can and back into the room.

Much of the damage caused by the 1931 Yangtze River floods could have been avoided if flood control measures were followed closely. At the time of the floods, most of China's resources were being put towards funding a civil war, therefore sediment built along the river's bank and the Yangtze was inevitably neglected.

Wuhan has increased its resilience to flooding through rainwater interception and other stormwater management systems, and constructed wetlands to help treat runoff and improve water quality, while also acting as natural flood barriers. Water regulation structures, such as levees and interconnected storage lakes, and a wastewater collection network that operates separately from stormwater collection is also established.

Through promoting integrated river basin management, including ecological water management; Adjusting cropping systems to changed climate; Protecting natural forests; Reducing human impacts on alpine grasslands; Restoring wetlands; and Promoting low-carbon development. These Nature-based solutions are essential.

However ecological conservation must play a greater role in mitigating flood all around the world. Page 58, and 59 Part 4 of the Guide....

It's not just a question of whether we can work with Nature it's a matter of we have to. We have stripped away our forests, intensively grown mono crops, changed river courses and poured in deadly chemicals which will echo their impact through the coming centuries, and then watched as jungle and grass land turns to desert, seen millions of tonnes of topsoil washed away and silted up natural defences against flooding. Built dams and then mis-managed to point of collapse – Libya, Kenya and Brasil just three recent examples. I won't go on, but we could talk about our oceans, our glaciers and the air we breathe.

Humanitarians just like the rest of the world, can't dither or wring our hands in the face of such environmental destruction and impact, we have no Planet B either. As I said last year, to be a humanitarian now is to be environmentalist. It's not an optional extra. And the good news is we have hundreds of success stories and examples and guidance where we are beginning to turn things around. But we have all have to do more because we are still on the wrong side of history when it comes to passing onto the next generations this fragile earth.

Annexe 2

Scenario for NbS/Sphere groupwork

Title: Addressing Multi-Sectoral Challenges in a Flood-Affected Community

Location: The fictional coastal community of Seaview



Situation Overview:

Seaview, a picturesque coastal community, is grappling with the aftermath of a severe flooding event triggered by a recent cyclone. The flooding has resulted in significant damage to infrastructure, displacement of families, and disruptions to essential services. As a humanitarian responder, your team has been deployed to provide immediate HUMANitarian assistance, add value to existing capacities and implement sustainable solutions to address the ongoing challenges:

1. WASH (Water, Sanitation, and Hygiene Promotion):

The flooding has contaminated Seaview's water sources, increasing the risk of waterborne diseases. Access to safe drinking water and adequate sanitation facilities is crucial to prevent further health crises. The existing sanitation infrastructure has been damaged, worsening the situation. Promoting hygiene practices and ensuring access to clean water are essential for protecting the health and well-being of the community.

2. Food security and Nutrition:

The flooding has devastated crops and disrupted food supply chains, leaving many families without access to nutritious food. Immediate assistance is required to ensure food security and prevent malnutrition among at-risk populations. Spoilage of food supplies due to the lack of refrigeration facilities further exacerbates food insecurity. Sustainable solutions are needed to address these challenges and ensure access to nutritious food for all residents of Seaview.

3. Shelter and Settlement:

The flooding has caused widespread damage to homes and infrastructure in Seaview, displacing several families. Many residents are now living in makeshift shelters or temporary accommodations, exposing them to harsh weather conditions and health risks. There is an urgent need to provide safe and adequate shelter to the displaced population and support efforts to rebuild resilient communities in Seaview.

4. Health:

The flooding has severely impacted health services in Seaview. Health facilities are damaged, and access to medical care is limited. There is an urgent need to restore and strengthen healthcare services to address injuries, illnesses, and maternal health needs among the affected population. Additionally, the proliferation of disease vectors in flooded areas poses a significant health risk that must be mitigated.

Group task:

Each group will work on a different technical sector e.g. WASH, Shelter, Food, Health.

You have 30 minutes to identify nature-based solutions you can use when designing your response according to Sphere minimum humanitarian standards. Please consider every phase of the disaster management cycle.

Remember to:

- Draw on the collective experience of your group, as well as our roving facilitators
- Consult the Sphere Handbook (hard copy, HSP app)
- Consult the Sphere Unpacked Guide: Nature-based solutions for climate resilience in humanitarian action (hard copy, online)

	Disaster Risk Reduction (preparedness)	Emergency Phase (hours to days)	Early Recovery (weeks to months)	New Protracted Crisis (weeks to months)	Sustainable reconstruction or ongoing protracted crisis (months to years)
Nature-based solutions that we can use to meet minimum humanitarian standards in:					
WASH					
Shelter					
Food Security and Nutrition					
Health					

Notes for facilitators

Objectives of the Workshop:

By the end of the workshop participants will:

1. Identify the concept of people-centeredness in humanitarian response, recognizing the importance of involving communities not merely as recipients having only needs but as active members of solutions using their capacities and resources
2. Explore practical solutions for addressing humanitarian challenges using the Sphere Handbook and Nature-Based Solutions Unpacked Guide, recognizing their accessibility and applicability in diverse contexts
3. Recognize the interconnectedness of technical chapters with Sphere's Foundation Chapters: the Humanitarian Charter, Protection Principle, and Core Humanitarian Standard, emphasizing their integration for effective implementation of nature-based solutions.
4. Cultivate a practical and solution oriented mindset and attitude to consider environmental impacts in humanitarian interventions, acknowledging the importance of sustainability and resilience in nature-based solutions.
5. Identify the qualitative nature of Sphere Minimum Standards and the necessity of contextualizing them with the affected people and communities
6. Familiarize participants with the IFRC Code of Conduct Principle 6: "We build our disaster response on local capacities..."

Please note, if participants are struggling to find NbS to apply in humanitarian response, the following table lists examples from the Sphere Unpacked Guide: Nature-based Solutions for Climate Resilience in Humanitarian Action, which may be used as prompts for discussion.

	Disaster Risk Reduction p. 52-68 (preparedness)	Emergency Phase p. 69 (hours to days)	Early Recovery p.70 (weeks to months)	New Protracted Crisis p.71 (weeks to months)	Sustainable reconstruction or ongoing protracted crisis (months to years)
Nature-based solutions that we can use to meet minimum humanitarian standards in:					
WASH P. 39-42	Reef conservation, rehabilitation or restoration (p. 52) Seagrass meadows, mangrove forests, tidal area restoration (p. 53)	Identify environmental impacts to WASH	Design risk-informed water points and toilets e. Composting toilets that take into consideration climate and hazard models, groundwater modelling, and energy access	Source sustainable materials for recovery, waste management and waste recycling eg composting for fertiliser, bio-toilets that recycle methane gas for household energy use	Improve waste management alongside ecosystem restoration, protect watersheds for water safety and security
Shelter p. 47-49	Horizontal levees/embankments (p. 54) Sustainable land use and management e.g. revegetation, reforestation, soil conservation (p. 55)	Avoid mass environmental degradation of critical ecosystems, or placing shelters in hazard zones e.g. flood plain	Make existing and future infrastructure climate-resilient Community-based protection using a DRR and resilience approach with community members Sustainable resourcing	Integration of NbS into design of new community/settlement	Environmentally sensitive reconstruction, sustainable materials Sustainable energy provision
Food Security and Nutrition p. 43-46	Rainwater harvesting (p. 67) Land use regulation (p. 68) Community health awareness campaigns to improve knowledge about climate-, environment and hazard-related seasonal threats to health and well-being (p. 73)	Understand options for locally sustainable food production and livelihoods in place pre-shock to ensure support to these systems	Cash-for-work programmes could support livelihoods eg. gardening and site management roles for community	Livelihood skills development, restore ecosystem, “learning plots” for climate-smart agriculture e.g. in camp, school, public gardens and green spaces	Restore landscape to improve food production, use local plant varieties/animal breeds resistant to disease and pests
Health p.49-51		Train and equip local DRR teams	Increase eco-safe road access to improve movement to safer locations when necessary	Incorporate environmental health questions into assessments, improve psycho-social well being through connection to nature	Protect the habitats and species involved in disease regulation, avoid introduction invasive

	Community-based committees lead landscape and site mapping (p. 30)				species, use vegetation to filter pollutants
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Workshop photographs

With thanks to our facilitators: Yaman Attasi, Vanda Lengkong, Alistair Short, Ayesha Hussein





With thanks also to our online facilitator, Axel Schmidt

The Sphere community sets standards for humanitarian action and promotes quality and accountability



And our mystery online artist: Yasmeen!

