SAFE SPACE

Part 1. PRE-CAMP SET-UP CCCM Site Planning Unit,

Håvard Breivik & Tone Selmer-Olsen Nepal 2015

SAFE SPACE

Part 1

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OPEN SPACE

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Background

Executive summary

This report describes the tools and methodology used for developing contingency plans for safe, temporary living conditions for earthquake-affected populations in Nepal. The contingency plans were developed as a part of the Camp Coordination and Camp Management (CCCM) Cluster's emergency response after the 2015 earthquake, with a particular focus on providing assistance to internally displaced persons (IDPs) exposed to additional, anticipated environmental threats, such as seasonal flooding and landslides.

The report is produced by NORCAP roster members Håvard Breivik and Tone Selmer-Olsen, both deployed immediately after the earthquake to support the International Organization for Migration (IOM) by establishing and leading the organization's CCCM Site Planning Unit. The report aims to:

1) Provide practical tools for pre-camp set up in future crisis by giving examples from activities initiated and led by the CCCM Site Planning Unit, as a part of the earthquake response and the CCCM Cluster's contingency plan for developing safe temporary living arrangements for internally displaced persons (IDPs).

2) To better equip IOM and the CCCM Cluster in supporting the Government of Nepal's disaster preparedness planning and Open Space allocation.

The report consists of two parts corresponding with the two goals listed above:

Part One is called *Safe Space*, and is a description of the tools and methodology used for developing the CCCM Cluster's contingency plan. Part One also provides an overview of partner identification processes with an emphasis on the collaboration with military counterparts.

Part Two is called *Open Space* and includes written and visual material produced by the CCCM Site Planning Unit during the mission. This part consists of detailed reports for all sites identified and assessed by the unit. Each report includes: a description of site conditions; maps and visualizations; a list of interventions needed to establish safe living conditions; preliminary design and costing and labor needed for proposed interventions.

This work could not have been carried out without the dedication and efforts from the entire CCCM Site planning team: Suman Karmarcharya, Tommy Sandløkk Olsen, Gaurav Shrestha, Atit Shrestha, Pankaj Kayastha Govinda, Prasad Shamrma Humagain , Bhimsen Kumar Gautam and Ingebjørg Skaare. And the DTM Unit – lead by Chandan Nayak and Ambika Mukund You are sincerely thanked for your contribution.

We would also like to extend a particular appreciation to the Canadian Army´s Disaster Assistance Response Team (DART) and Major Janie Desjardins, Officer Barkus and Amir and the rest of the team, who with their professionalism and efficiency were of invaluable support to the unit and IOM.

CCCM SITE PLANNING

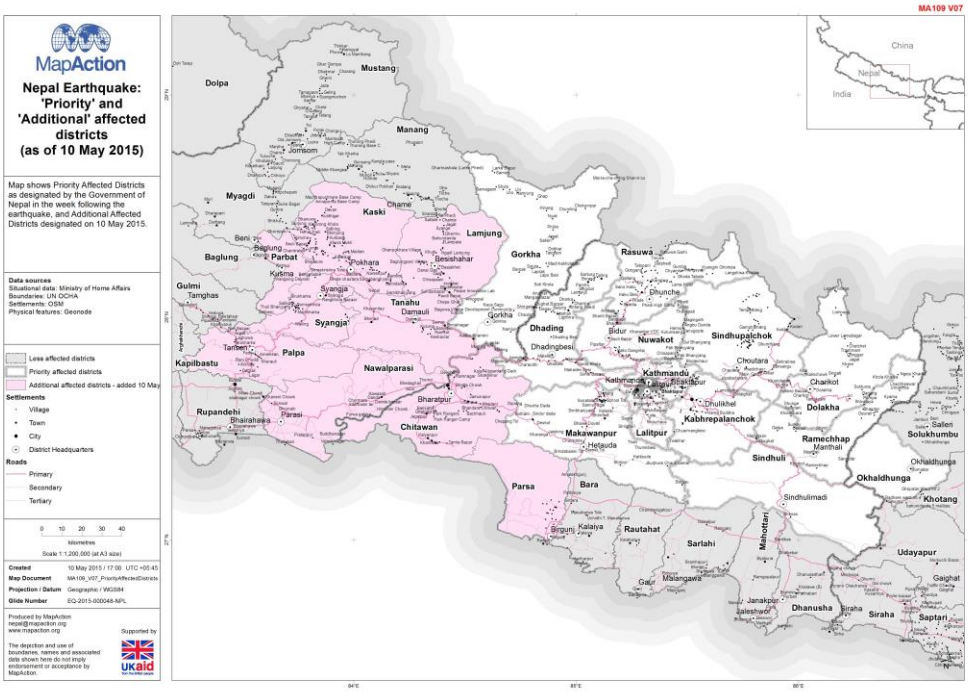
CCCM Site Planning's main objective is to respond to urban and rural displacement through spatial solutions and upgrade of the physical environment. Within the CCCM response, Site Planning's role is to identify and coordinate all physical interventions needed in order to create safe living conditions for displaced populations

Overview: Situation and Context

On 25 April 2015 a 7.8 magnitude earthquake struck Nepal, causing widespread destruction. The first earthquake was followed by thousands of aftershocks and another powerful quake on 12 May, measuring 7.3. The earthquakes caused 8,969 deaths and injured over 100,000 people. Over 500,000 houses were destroyed and approximately 269,000 damaged, causing mass displacement and people leaving their homes to seek refuge in open air.[1] Afraid of returning to their homes, people created spontaneous camps by moving into makeshift shelters or tents. The majority of the hundreds of thousands of IDPs who had lost their homes, stayed within their own neighborhoods, either with host families or in the vicinity of their collapsed houses.

Nepal is divided into 75 districts and out of these, 14 were severely affected**,** namely Gorkha, Kavrepalanchok, Dhading, Nuwakot, Rasuwa, Sindhupalchowk, Dolakha, Ramechhap, Okhaldunga, Makwanpur, Sindhuli, Kathmandu, Bhaktapur and Lalitpur, where about 5.4 million people live.

[1] UN Office for the Coordination of Humanitarian Affairs: http://reliefweb.int/report/nepal/nepal-flash-appeal-revision-nepal-earthquake-april-september-2015



Map showing the 14 mostly affected districts

Topography, infrastructure and settlement patterns in urban and rural situations in Nepal

The 14 districts are located in the Central and Western Region. Some of them are in urban areas like the towns of Bhaktapur and Lalitpur, and the Katmandhu Valley, others in elevated mountain areas, like the severely damaged districts of Gorkha, Dolakha and Sindhupalchowk .

Most village settlements in Nepal typically consist of a cluster of households (medium to low density) surrounded by cultivated, agricultural land organized as terraces in the landscape. Agriculture is Nepal's principal economic activity and employs 65% of the population.[2] Since small-scale agricultural production on rural residents' own plot of land is the most important source of income, only a few would consider leaving their house or land, even when partially or fully destroyed.

In the mountain areas the houses are usually grouped on a hilltop or hillside and near a river or spring. Throughout the hills there are a number of large towns with populations ranging between a few hundred and

[2] *www.undpcc.org/.../17_**Nepal**%20NIP_%20agricult*

a few thousand people, especially around important temples or monasteries, marketplaces, roads allowing motorized traffic, or administrative center. The most common building typology in the villages of medium elevation middle hills are two-story mud- brick houses with thatch or tin roofs.[3] Many villages in the higher mountain regions were completely destroyed, which forced people to move to their farmland or the closest public space.

In most urban areas, like in the Kathmandu Valley, the houses are more elaborate three-story dwellings built with stone or baked brick and with tin slate roofs. Compared to rural areas these neighborhoods are built with a higher density, and situated alongside small, narrow roads. Many of the hardest hit urban areas were some of the oldest and most dense neighborhoods in Kathmandu. The old stone buildings that collapsed left enormous masses of rubble and debris filling the few existing open spaces, blocking the streets and hindering access. This situation, with little or no flat or open safe space, forced people to flea to small pockets of open public space within their neighborhoods, gardens, market-places, football fields or temple squares.

NATURAL HAZARDS IN NEPAL

The natural elements represent many dangerous hazards in Nepal, in addition to the constant threat of earthquakes; large areas are prone to flooding in the monsoon season, accompanied by dangerous landslides. In the mountain areas in the highly elevated terrain, flat land not prone to any natural hazards is rare to locate.

Urban and rural contigency plan

Prepeardness, contingency planning, Open Spaces

Right after the earthquake, the intensity of the monsoon would potentially put thousands of displaced people living with minimal protection from the elements, at further risk and cause a second wave of displacement.

Conditions in both urban and rural areas posed a high risk for the already vulnerable IDPs due to limited accessibility and the possibility of rapid evacuation; the threat of buildings collapsing; and flooding and landslides caused by the monsoon. Historical data on monsoons demonstrated that these yearly heavy rains

[3] http://www.everyculture.com/South-Asia/Nepali-Settlements.html

could wash away roads, cause landslides, and thus hinder access to mountains areas, isolating settlements and villages.

In order to respond to the anticipated consequences of the monsoon, the CCCM Site Planning Unit took the lead in *supporting and further developing the* existing Contingency Plan known as Open Space allocation in Kathmandu Valley, and also identifying additional temporary displacement sites in other affected districts, prioritizing Sindhupalchowk.

A guiding overall strategy was to provide alternatives for IDPs in the districts close to their homes, in order to avoid a population influx to Kathmandu.

Picture from Bakthapour in Kathamandu Valley, one of the oldest Newari towns, which suffered major destruction. Photo: Tone Selmer-Olsen

Contingency Plan - Open Spaces in Kathmandu Valley

The concept 'Open Spaces' derives from an earlier Governmental-developed contingency plan prepared for the Kathmandu Valley and refers to ***potential sites*** for temporary displacements of internally displaced persons. It is important to note that the contingency plan/the Open Space project has been further developed by the GoN since the emergency phase in the immediate aftermath of the 2015 earthquake. This report only covers the work that was undertaken during the two months of deployment by the two NORCAP roster members, and is primarily produced to serve as a tool for identifying safe spaces in the pre-camp set-up phase in other post-disaster situations. The Open Space project is ongoing.

In Kathmandu Valley, 83 evacuation sites were selected as a part of the Open Space Concept, initiated in 2009 following the Koshi Flood Response and the activation of the cluster approach in Nepal. [4]

Information about all the 83 sites where gathered in the Google open Soucres web-site Open https://sites.google.com/site/kathmanduopenspaces/home

Including Orto photos, drawings and a General Enviromental impact Assemsemt for each site.

The Open Site project was make possible through the United States Agency for International Development (USAID) Office of Foreign Disaster Assistance. The data is under the proprietary control of the International Organization for Migration (IOM) and was developed with the direct consent of the Government of Nepal.[5]

[4] See Appendix Summary of Open Spaces Allocation Report

These identified sites were yet to be assigned a humanitarian purpose following the first earthquake. This because each open space had been allocated for the projected, but unspecified needs following a disastrous event in the Kathmandu Valley.

The Open Spaces were never designed to provide a full response/reception capability for all displacement in the Kathmandu Valley following an earthquake. The Open Spaces were only designed to provide the initial response planning framework for the Government and partner agencies to be able to have a starting point from which to provide life-saving assistance to those in immediate need The evacuation sites are located in different central locations in Kathmandu, Bhaktapur and Lalitpur. The selected sites are mainly large public fields, such as school yards, golf courses and soccer fields.

After the 25 April earthquake, 14 of these open spaces, and two additional open spaces were then used as ***evacuation sites***. While many families returned to their homes in the following days, the evacuation sites were again used after the second big earthquake on 12 May. In the following weeks, there were still a relatively high number of displaced persons, with no other option than to stay in these evacuations sites.

However, the evacuation sites were not necessarily suitable for hosting IDPs for longer than a few days and had been occupied in a spontaneous manner, leading to sub-standard living conditions that needed be addressed urgently. In order to provide a quick and meaningful response, in the event of these sites being activated as resettlement locations, the CCCM cluster had to be equipped to support the GoN, and prepared to clearly communicate the need for upgrading these sites to better standards, and also to be able to propose tangible solutions to identified needs.

CCCM decided to focus on the 16 sites identified by the government for immediate displacement after the earthquake of 25 April and to produce additional material for these sites describing what needed to be done in order to function as proper evacuation sites, including written and visual material describing current conditions, people capacity and recommendations for interventions/ technical engineering solutions, and the costing of these interventions.[6]

Contingency plan - Open Space in the districts

In the Kathmandu Valley, the CCCM Site Planning Unit based the contingency work on the already existing Open Space plan, providing additional needed information by giving recommendations for which technical interventions that would be needed for developing these sites in accordance with universal humanitarian minimum standards. There were no such plans available for the other affected districts.

After field visits, the CCCM Site Planning Unit soon realized that flat land in the mountain areas, safe from natural hazards like flooding and landslides, were difficult to locate. Consequently, a methodology for identifying and reaching such sites had to be developed.

Many of the districts consist of hundreds of small remote settlements and villages, many of them hard to reach due to the elevated terrain and poor infrastructure. This is also the case for many areas in the districts of Gorkha, Dolkha and Sindhupalchowk. With the approaching monsoon season, usually starting in June, the

[5] https://sites.google.com/site/kathmanduopenspaces/bhaktapur-darbar-square
[6] CCCM Open Space Reports is fully included in Part 2 Open Space

already hard-to-reach settlements ould soon be even more isolated, adding to the urgency of identifying and preparing safe spaces for temporary occupation for people in these areas.

Picture from a mountain-village, showing the settlement pattern, the topography and infrastructure and the enormous damage after the earthquake, and the challenge to find safe space in the terrain.

CHOICE OF SITES

Choice of sites will help protect rights and minimize disruption. For example choosing relocation sites that are as close to the home community as possible, will reduce the travel needed, maintain residence in familiar surroundings, and facilitate return when it becomes possible.
UN Guiding principles on Internal Displacement (1998)

Methodology and tools

The following activities were identified for developing a comprehensive contingency plan for at-risk populations in remote mountain areas:

- Define site selection criteria for each district
- Identify partners
- Desk study / GIS (Geographic information system) mapping exercises
- Conduct site visits
- Conduct land suitability assessments
- Produce recommendations and cost calculations for site interventions

Criterias site selection

The selection of a site depends on many factors: Location; size, site characteristics and conditions; geology; topography; availability of resources safety and security issues; coexistence with the surrounding communities; and other cultural and social considerations.

The most important parameters to consider when selecting a site are thoroughly discussed in the Camp Management Toolkit[7], including environmental hazard mapping and other variables. In this report we have only included the most important considerations for the Nepal context.

Sites must be easily accessible during all seasons in order to ensure the regular provision of relief supplies mobility, and the possibility of pursuing livelihood options. Access is also essential to services such as health and care.[8] As described, this is a particular challenge in the mountain areas in the Nepal, where many roads get blocked throughout the monsoon season. Based on these circumstances and considerations, selecting sites close to all-season roads was identified as one of the main criteria.

[7] http://www.nrc.no/?aid=9177505#.ViZClkXnuYk
[8] Camp Management Toolkit, chapter 7 Camp Set-up and Closure p.98

Methodology for site selection

Hazard risk

The first consideration when selecting a site is to ensure that the land is not exposed to natural hazards, such as flooding, landslides and earthquakes. [9]

Overall, finding suitable sites based on the above criteria proved to be a challenge due to the topography of the country. In the initial GIS mapping (criteria specified in the chapter *Mapping – GIS (Geographic Information System)*, one main criteria was that a potential site had to, ideally, be located no more than 25 meters (m) away from stream and or river, this to avoid flooding or landslides during heavy rains or triggered by additional earthquakes, but at the same time ensure access to a water source . The final selection of potential sites should ideally have been done after submerging maps of identified locations with an overall environmental hazard mapping (historical data or simulations). Such digital maps were not available to us at the time of the mapping.

Geology and Topography

A suitable site should also have a gentle slope with a gradient of between two and six percent, this to ensure natural drainage, which could also be used for agricultural activities.[10] Proper drainage solutions are also more challenging to construct on flat land, and excess surface water could lead to the accumulation of standing water. Areas with a greater gradient are equally challenging due to the lack of buildable surfaces, and the risk of landslides and run-off water. Finding sites with a slope degree less than 5 degrees and of acceptable size proved to be a challenge because of the terraced landscape and the topography in the mountain areas.

Size – capacity

According to the Sphere Project [11]the minimum space required per person in a temporary emergency settlement is 45 square meters (m²). This includes common space and all necessary facilities. When communal services are available in already existing facilities outside and in close proximity to the camp/settlement, the minimum surface area is 30 m² per person, according to the United Nations High Commissioner for Refugees (UNHCR) Handbook in Emergencies.[12] In the case of Nepal, where flat, open spaces are extremely scarce, we decided to use the 30 m² minimum standard when calculating the capacity of a site. By using this standard, it was then decided that the site should be no smaller than 2000 m² in order to accommodate an acceptable number of people (based on implementation capacity and construction costs) A site with a surface area of 2000 m² would then accommodate approximately 67 persons in 15 households (counting 4,5 persons per household).

[9] Camp Management Toolkit, chapter 7 Camp Set-up and Closure p.98
[10] Camp Management Toolkit, chapter 7 Camp Set-up and Closure p.98
[11] http://www.sphereproject.org/
[12] http://www.unhcr.org/472af2972.html

Cultural and social Considerations

The cultural and social context of the displaced population is an important factor in site selection.
It is important to ensure that the displaced community provides input on how the layout of the site can be made as culturally and socially appropriate as possible. This should allow for familiar norms, behaviors and rituals to continue in the camp. [13]

A defining feature of Hinduism is the cast- system that encompasses a complex ordering of social groups on the basis of ritual purity. A person is considered a member of a caste into which he or she is born and remains within that caste until death. Differences in status are traditionally justified by the religious doctrine of karma, a belief that one's place in life is determined by one's deeds in previous lifetimes.[14]

Nepal's 1990 constitution prohibits discrimination on the basis of caste (along with religion, race, sex, and ideology). However, an exception was created for Hindu religious practices, and discrimination based on cast in the society, especially in rural areas, is still in existence. [15]
In some areas low casts are not allowed (by tradition, not by law) in the same places e.g. restaurants, shop and other public places, as the high castes. They are also not allowed to utilize the same public drinking water taps and wells.

For this reason questions about segregation issues were included in the Land Suitability assessment form. In the end, the assessments only revealed one case of caste segregation. In this specific site, high and low castes had already settled in different areas, and established different facilities. There are reasons to believe that this segregation existed elsewhere too.

It is important to solve these issues in practical manner, providing equal access to facilities in temporary relocation sites, would mean planning for two sets of water-points and sanitation facilities. A question then arises; is this sustainable solution? It would increase costings and decrease capacity. On the other hand, access for all- especially the most vulnerable in a situation like this, is especially important to take into account. In the contingency planning part we did not include this aspect in the calculation of capacity and costings. As a next step, and in order to complete the contingency plan and how to address these issues, should be further discussed with the GoN.

Security

A settlement/camp´s location could either enhance or jeopardize the protection of displaced populations. Safety issues included host communities with strong ties to the displaced population, proximity to responsible security forces and ample resources. [16] In Nepal, the majority of the affected population would not leave their

[13] Camp Management Toolkit, chapter 7 Camp Set-up and Closure p.102

[14] https://www.hrw.org/reports/2001/globalcaste/caste0801-03.htm

[15] U.S. Department of State, *1999 Country Reports on Human Rights Practices: Nepal* (Bureau of Democracy, Human Rights and Labor, U.S. Department of State, February 25, 2000). The Constitution describes Nepal as a "Hindu Kingdom," though it does not establish Hinduism as the state religion.

[16] Camp Management Toolkit, chapter 7 Camp Set-up and Closure p.98

neighborhoods, but stay close to their land and source of income. A decisive factor when determining site selection criteria, was therefore that temporary relocation sites should be in close proximity (max 1000 m) to existing settlements.

Availability of Resources

Access to available resources, such as water, fuel and building materials, is another important factor when selecting a site. This is especially relevant in Nepal, where access roads usually get blocked by shifting land masses during the monsoon season. Shortage of basic supplies, due to the lack of infrastructure or transportation obstacles, can cause outbreak of life-threatening diseases, as well as trigger conflicts.

Landownership

The issue of land ownership is another important factor in pre- camp planning. No land can be developed as an evacuation/temporary relocation site without the consent of the landowner. The expected length of use should be clearly stated in the agreement. The host -/ or neighboring community should be properly informed about any development of a site, and to the extent possible, consulted in the planning process. The initial mapping exercise did not take this aspect into consideration when identifying potential sites, but would have been included as a next step once the GoN decided to activate relocation settlements.

Mapping – GIS (Geographic Information System)

Mapping Criteria

Based on overall universal considerations for developing a safe resettlement site, taking into account both the cultural particularities (caste, religion) and the physical conditions of the natural and built environment of Nepal (geology, topography, infrastructure and settlement patterns), the following criteria were used for identifying potential sites during the initial GIS mapping exercise:

- The site has less than a five degree slope (landslide and flooding hazards)
- The site has main road access in close proximity (access to provision of services)
- The site is within a 1000 m distance to one or more existing settlements
- The site is at a minimum distance of 25 m from a stream (flooding hazards)
- The site is at a minimum distance of 25 m from built environment (danger for buildings collapsing)
- The site should be of a minimum size of 2000 m².Note, the criteria for size varied slightly from district to district, based on topography and the need to limit number of sites.
- IMPORTANT NOTE: The final selection of sites should be done after submerging maps of identified locations with an overall environmental hazard mapping e.g.: landslides; seasonal flooding.

These criteria were developed for the specific context of Nepal, based on the local conditions, but as a guiding set of criteria, these parameters could also be applicable in other contexts.

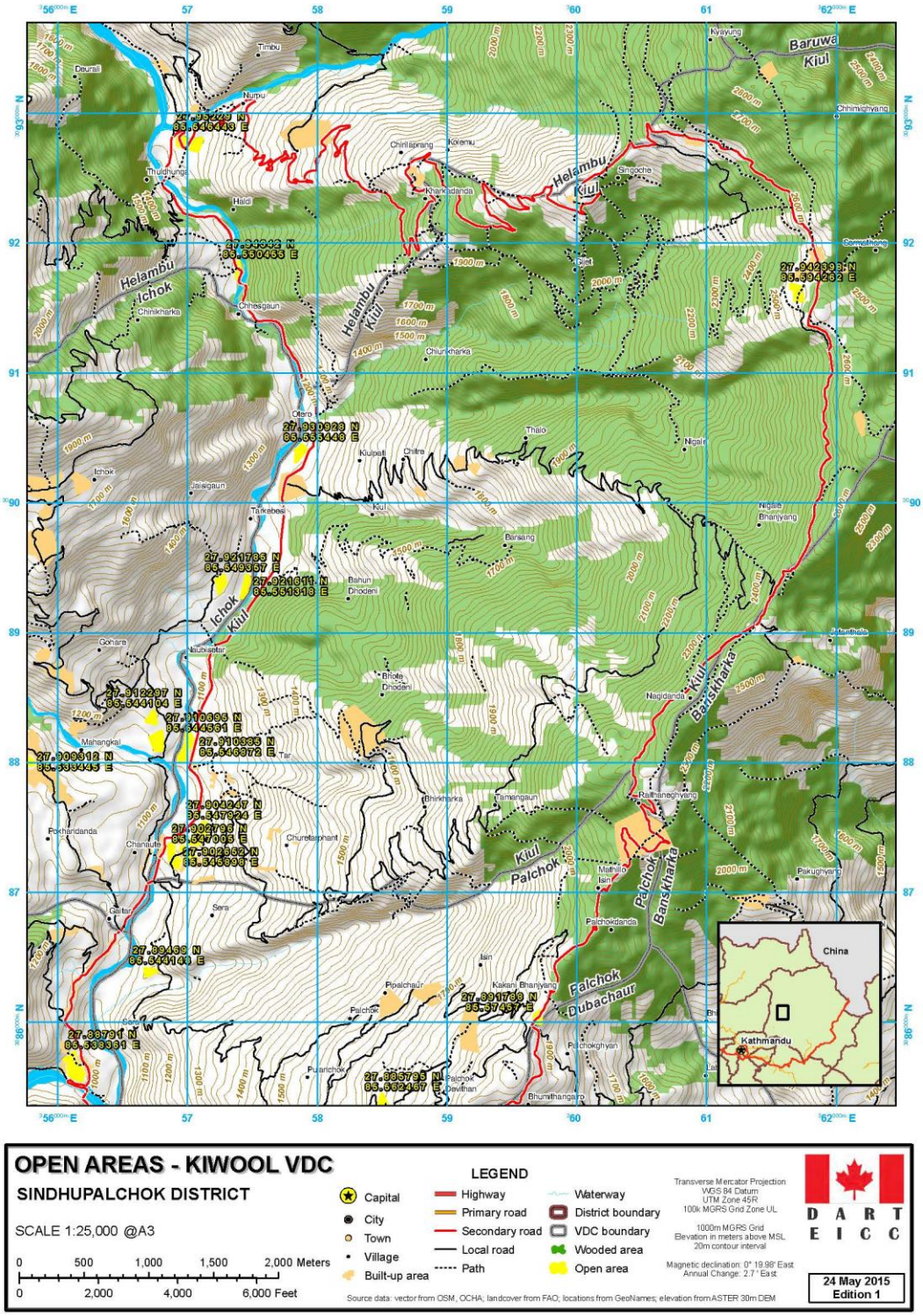
GIS (Graphic Information System)

Geographic Information System (GIS) is a computer system for capturing, storing, checking, and displaying data related to positions on the Earth's surface. GIS can show many different sets of data in one map. This makes it easier to discover, analyze, and understand patterns and relationships between physical conditions and social behavior.

Data, in many different forms, can be entered in GIS. Data that are already in map formats can be inserted. This includes information about location of settlements, rivers and roads, hills and valleys. Digital, or computerized data can also be entered. GIS can also include data in table form, such as population information. GIS technology allows all these different types of information, no matter their source or original format, to be overlaid on top of one another in one single map. [17]
Once all of the desired data have been entered into a GIS system, they can be combined to produce a wide variety of individual maps, depending on which data layers are included.

People working in many different fields use this technology: The military has specialized GIS teams to produce maps; private corporations use GIS to help determining where to locate a new store; biologists use GIS to track animal migration patterns. City officials use GIS to help plan their response in the case of a natural disaster such as an earthquake or a hurricane, as these maps can also be used for determining which neighborhoods are at most risk of natural hazards, where to locate emergency shelters, and evacuation routes.

[17] http://education.nationalgeographic.com/encyclopedia/geographic-information-system-gis/



Overview map of potential sites in the KIWOOL VDC District, Sindhupalchock, produced by the CCCM Site Planning Unit, and DART- GIS Team. The yellow areas show potential sites that match all the criteria: Minimum 2000m in size, less that a 5 degree slope, close to existing settlements and main road access, and away from streams and built environment.

LAND SUITABILITY ASSESSMENT FORM

A Land Suitability Assessment form is a tool that provides key information about a site size, capacity, internal and external hazards, access to external systems of support infrastructure, and provides information if a site is suitable or not, to function as an evacuation site .

Developing tools

A Land Suitability Assessment Form gives key information about a site: Size, land ownership, capacity, location, physical and natural conditions, and access to external support infrastructure, such as sewage, and electricity and drainage. It describes if the site is prone to any internal or external hazards from the built environment (collapsed buildings) flooding, avalanches or landslides. Based on this information it is possible to decide whether a site is suitable as a temporary settlement/camp, and to give recommendations as to which technical interventions (engineering work) are needed. When assessing the site, some of the following questions should be posed: Does the site need to be connected to a drainage system? Are there any water points on the site? Is it possible to connect to an electricity grid? How is the soil? Does the site need ground work? In case it does, would hand digging be sufficient or is heavy machinery required?

This information is key and forms the basis for providing recommendations for required engineering measures, calculating costs, manpower, equipment and timeframe. The Land Suitability Assessment Form used in Nepal was developed in collaboration with engineers from UNOPS. This form can easily be modified for other contexts.

It is important to point out that the initial estimation of required interventions for each site was primarily produced to inform the CCCM and other clusters, as well as the GoN, about the anticipated overall scope of works. During this phase only engineering interventions were included. Any disparities between the maps produced during the initial identification of Open Spaces (2009), and the maps produced in the aftermath of the earthquake (2015), could possibly be explained by the following:

- The maps and area calculations produced in the aftermath of the earthquake were meant to serve as background information indicating scope of works and required interventions, not precise drawings and layouts.
- In some cases, the assessment teams decided that only certain parts of the total area (included in the 2009 report) were suitable as per international standards, or not worth (financially and timewise) developing due to extensive required ground works.
- Potential technical glitches, such as errors in measurements tools/GPS.
- The rapid assessments were conducted during a period of only a few weeks, as opposed to a longer period of time (the 2009 report), and in combination with limited accessibility and time constraints, double-check and verification of data were not possible. As such, some errors might have occurred.

Once a decision had been made about developing any of the identified sites into a resettlement site/ camp, the unit would provide site-specific layouts and plans of internal organization and any other design solutions required – all in coordination with the affected population, clusters, other relevant partners and governmental counterparts. Simultaneous to the process of identifying suitable sites, the unit also worked on developing **design interventions taking into consideration psychosocial well-being** in both spontaneous - and planned temporary displacement sites. The unit decided that the cluster should advocate for the creation of common places that serve everyone in a temporary displacement site—recreational space, play areas, urban furniture or other social gathering points. As such, the unit had developed a set of interventions ready for implementation.

The Land Suitability Assessment Form

<table>
<tr><td colspan="3">Site Name:</td></tr>
<tr><td colspan="2">Location:</td><td>SSID (DTM ID - if applicable):</td></tr>
<tr><td>Coordinates:</td><td>° N</td><td>° E</td></tr>
<tr><td colspan="3">Local Committee /Contact/NGO:</td></tr>
<tr><td colspan="2">Phone Number:</td><td>Date:</td></tr>
<tr><td colspan="2" rowspan="2">Population (note source):
Segregation issues:</td><td>Public land</td><td></td><td>Private land</td><td></td></tr>
<tr><td colspan="4" rowspan="2">Intended type of settlement (tick box)</td></tr>
<tr><td colspan="2" rowspan="2">Assessment team (DART), (CCCM/IOM)

Approximate area (square meters):</td></tr>
<tr><td colspan="3">Permanent</td><td></td></tr>
<tr><td colspan="3">Temporary</td><td></td></tr>
</table>

Site Conditions / Recommendations

Presented below are the observations and findings gathered during the site visit and recommendations for the improvement of the site to meet the intended land use as temporary displacement site:

The proposed site is situated in *an urban/rural setting*

Description of the land

Considering the recommended minimum surface area per person living in a temporary settlement, in accordance with universal minimum standards at **30 m^2/person** land allocation and **5.5 persons per family**, approximately **XX shelters** can be erected to accommodate an estimated **XXXX IDPs**. Numbers subject to change.

Furthermore, the site is acceptable/not acceptable as a temporary displacement site but requires technical/engineering improvements including but not limited to the following:

List interventions

Disclaimer: A detailed design should be carried out to determine the actual volume of works				
Internal Hazards	Landslide:	Yes	No	Recommendations:
	Avalanche:	Yes	No	Recommendations:
	Flooding:	Yes	No	Recommendations:
	Built Environment:	Yes	No	Recommendations:
	Other:	Yes	No	Recommendations:
External Hazards	Landslide:	Yes	No	Recommendations:
	Avalanche:	Yes	No	Recommendations:
	Flooding:	Yes	No	Recommendations:
	Built Environment:	Yes	No	Recommendations:
	Other:	Yes	No	Recommendations:
	Land Use/ Zoning:	Yes	No	Recommendations:
	Service Corridors:	Yes	No	Recommendations:
	Drainage System:	Yes	No	Recommendations:

	Access Routes:	Yes	No	Recommendations:
		X		
	Lighting:	Yes	No	Recommendations:
	Health Facilities:	Yes	No	Recommendations:
	Education Facilities:	Yes	No	Recommendations:
	Community Facilities:	Yes	No	Recommendations:
	Rubbish Collection Points:	Yes	No	Recommendations:
Potential Impacts of Site to Neighbouring Communities:		Yes	No	Comments/Notes:
Proximity to Neighbouring Communities:		Yes	No	Notes:

Access to External Systems of Support Infrastructure (are there connections to these systems available nearby/locally?)					
Water:	Yes	No	Distance to connection:	Type/Size of Connection:	Capacity of Supply Connection:
Electricity:	Yes	No	Distance to connection:	Type/Size of Connection:	Capacity of Supply Connection:
Sewerage:	Yes	No	Distance to connection:	Type/Size of Connection:	Capacity of Supply Connection:
Storm Drainage:	Yes	No	Distance to	Type/Size of	Capacity of Supply

			connection:	Connection:		Connection:
IT/Comms:	Yes	No	Distance to connection:	Type/Size of Connection:		Capacity of Supply Connection:
Roads/Access Routes:	Yes	No	Distance to connection:	Type/Size of Connection:		Capacity of Supply Connection:
Waste Collection:	Yes	No	Distance to connection:	Type/Size of Connection:		Capacity of Supply Connection:
Health:	Yes	No	Distance:	Type:		Capacity of Service
Education:	Yes	No	Distance to connection:	Type/: N/A		Capacity of Service
Local Government Services:	Yes	No	Distance to connection:	Type:		Capacity of Service
Land Ownership Documentation Available:	Yes	No	Government:	Yes	No	Details:
				X		
			Private:	Yes	No	Details:
			Public:	Yes	No	Details:
			By Use:	Yes	No	Details:
			Other:	Yes	No	Details:

Other Site Documentation
Recommended scope of works (Sketch):
Photographs:

Identifying partners

Humanitarian actors, United Nations agencies and local organizations

Within the CCCM response, Site Planning's role is to identify and coordinate all physical interventions needed in order to create safe living conditions for displaced populations. Apart from building up a site planning team capable of providing emergency relief, the main task of the two secondees was to identify partners that could support our activities.

At the time of arrival, nine days after the 26 April earthquake and in the following weeks, the GoN was reluctant to developing formal resettlements/camps. Due to financial constraints, the CCCM Cluster had very few partner organizations ready and capable of partaking in the initial response. At the same time, the Ministry of Home Affairs (MOHA) requested the CCCM Cluster to be ready for any eventual need for the management of future temporary displacements sites. The unit considered this to include the development of planned temporary displacement sites. This situation called for IOM, as the cluster lead, to advocate for the need for developing a contingency plan with additional Open Spaces, to propose required interventions for upgrading evacuation sites to planned temporary displacement sites, and to be prepared to act upon the request from the GoN.

The unit therefore saw it as a priority to identify partners with the capacity of supporting the cluster with engineering know-how. Due to the vast response area, 14 districts with remote villages in mountainous areas and settlements that were difficult to reach, and in view of the urgency, it was also important to include partners with the manpower to deploy several teams at the same. As many of the partners with which the cluster traditionally collaborates during a crisis, had not received adequate funding through the OCHA Flash Appeal – such as UNOPS - the unit had to explore the possibilities of engaging other partners.

CIVILIAN MILITARY COORDINATION

The United Nations Humanitarian Civil-Military Coordination (UN CMCoord) facilitates dialogue and interaction between civilian and military actors, essential to protect and promote humanitarian principles, minimize inconsistency and, when appropriate, pursue common goals.

Civilian Military Coordination

When a crisis causes humanitarian needs, many countries will deploy their military forces or paramilitary organizations to respond. Bilateral support to disaster-affected states can also be provided through international deployment of foreign military actors and assets. [18]

Connecting civilian and military operations is usually coordinated through OCHA, which requests the support of the National Authorities for Military support through the established United Nations Humanitarian Civil-Military Coordination (UN CMCoord)framework.

When military, local and international humanitarian organizations are involved in crisis response, it is essential that all parties are able to operate in the same space without detriment to the civilian character of humanitarian assistance. For this reason the UN CMCoord facilitates dialogue and interaction between civilian and military actors, which is essential to protect and promote humanitarian principles, minimize inconsistency and, when appropriate, pursue common goals.[19]

Shortly after arrival, the site planning, consisting only of the two NORCAP secondees at the time, was requested to assist the Canadian Army's Disaster Assistance Response team (DART) in assessing suitable sites for setting up step-down medical facilities. During the joint assessment, the DART team presented themselves as an unexpected resource with common goals and manpower to carry out the activities identified by the unit. Through OCHA the unit requested DART support in developing the CCCM Contingency – Open Space Plan. The request for foreign military forces to operate on foreign ground has to be accepted by governmental partners. For this purpose a request form has been developed [20] and because of the established coordination mechanisms, the CCCM Site Planning Unit's request for engineering support was swiftly granted.

The Canadian Army`s Disaster Assistance Response team (DART)

The Canadian Army's Disaster Assistance Response team (DART) is a multidisciplinary military organization designed to be deployed on short notice in response to situations ranging from natural disasters to complex humanitarian emergencies, globally. The team is equipped to conduct emergency relief operations for the duration of approximately 40 days in order to fill the gap until national and international aid agencies arrive. Working alongside local authorities and other international organizations and agencies, DART acts as a stabilization force until regular services are restored. DART serves three critical needs in emergencies:

- water purification
- primary medical care
- engineering support.[21]

[18] http://www.unocha.org/what-we-do/coordination-tools/UN-CMCoord/overview
[19] http://www.unocha.org/what-we-do/coordination-tools/UN-CMCoord/overview
[20] See page X
[21] http://www.forces.gc.ca/en/operations-abroad-recurring/dart.page.

The DART deploys outside Canada only in response to a formal request for its services either from the affected country or from an international organization such as the United Nations.[22]

In Nepal the Canadian forces had a large team of engineers available for immediate deployment, but without clearly identified tasks. When requested by the CCCM Site Planning Unit to support the cluster in accomplishing the task of identifying and conducting assessments of potential Open Spaces in both Kathmandu Valley and Sindhupalchock, they made this one of their prioritized activities.

DART proved to be an invaluable partner that had the technical expertise on GIS mapping, the manpower to go on site-visits and the professional know- how to conduct land suitability assessments. In total four DART teams, the GIS unit and three designated engineering units for site-visits and land suitability assessments, were assigned to assist CCCM in both the Kathmandu Valley and Sindhupalchowk district.

Procedures

By using the criteria identified for the GIS mapping, the DART team located 48 potential sites in the district of Sindhupalchowk. Conducting a proper land suitability assessment for each of these sites would have been time consuming, and it was decided that the engineering teams should conduct rapid site visits only, as a first step. There is also a margin of error when conducting a desk study, and some of the sites identified through the GIS mapping, proved be unsuitable upon visit, even if they matched the identified requirement. The site visit reports formed the basis for which sites to revisit and where to conduct a full land suitability assessment with the production of subsequent reports.

Based on the GIS mapping, all engineering teams were able to locate the sites through GPS coordinates and aerial photos of each site. Their findings were reported back to the Major in Charge, who coordinated the teams, the GIS unit, and the Site Planning Unit - responsible for coordinating all activities. This reporting procedure ensured that all parties were informed at all times, and that the information obtained in the field was properly registered in a database used for updating maps and reports.

Over a period of 14 days, the teams had identified 48 sites in the Sindhupalchowk district, visited all of them, marked 10 of them for assessments, conducted land suitability assessments in five of these, and produced complete reports for each one of them. In Kathmandu the sites had already been identified, and land suitability assessments were conducted in 11 of the 16 prioritized evacuation sites, with subsequent reports.

This experience shows that military forces can be an important asset for humanitarian actors during an emergency phase.. One advantage is that the teams are self- supported and provide their own room and board, regardless of being deployed to remote areas or in urban settings. They have the equipment, tools, man-power and the resources to provide meaningful support, and most importantly they are fully funded.

At the same time it is important to be aware that military forces often are bound to different mandates than the humanitarian actors and have other restrictions and guidelines. Geopolitical issues also have implication for how and where to utilize military forces on foreign ground. As an example, we had to exclude visiting certain areas of the affected districts, due to the closeness to the Chinese border. The Canadian military were not allowed closer than 20 km to the border. This meant that some of the most vulnerable villages in the northern mountain areas had to be left out of the response area. Due to the short duration of stay for the Canadian military, the unit was constantly looking for other partners that could support the ongoing work, and most importantly ensure continuation of the work that DART had started. The unit tried, through OCHA, to partner with the Nepalese army, but failed to do so due to lack of resources and interest.

Civilian Actors

In order to continue the ongoing work of conducting land suitability assessments of open spaces, collaboration between IOM and The Kathmandu University was initiated by the CCCM Site Planning Unit. The responsibilities of IOM included: Preparation of the necessary background materials for conducting site visits and land suitability assessments; training of the students who would be engaged in conducting site visits and land suitability assessments; assume responsibility for the overall coordination of the logistics needed for conducting site visits and land suitability assessments

Once the agreement with the University came close to being finalized, IOM decided to not continue developing the contingency plan, based on the GoN's reluctance towards relocation, a debate that merged into the discussion about Open Spaces, and temporary displacement sites.

OCHA

ENGINEERING WORKS REQUEST FORM

Requesting Organization:	Date of request:	IPC Request Number:
CCCM Cluster / International Organization for Migration (IOM)	May 14, 2015	

1. Engineering Assistance : Where & When

District: Kathmandu Valley **Lat:**

Long:

VDC: 16 OPEN SPACES in various VDCs. Please see list attached (ANNEX 2)

Address: 16 OPEN SPACES in various VDCs. Please see list attached (ANNEX 2)

Task requested from (date & time): **To** (date & time):

ASAP until completion (estimated timeframe two weeks)

2. Engineering Assistance: What

☐ **Road Repair** **Length** (in kilometres): _____

Type of Repair: ☐ Levelling ☐ Gravelling

☐ **Heavy Equipment Support- Specify Type:**

☐ **Bridge Repair** **Length** (in metres): _____

☐ **Land Preparation** **Total Area** (in square metres): _____

Type of Work: ☐ Clearing ☐ Leveling Compacting

☐ Others, specify: _____

☐ **Request for Prefab Building**

Number & Type: ☐ Single-Module ☐ 3-Module ☐ 6-Module

☐ Tent(s): specify size and number: _____

☐ **Rubble Removal** Volume (in cubic metres): _____

☐ **Demolition of building** Area (in square metres): _____

☐ **Mitigation Works**

Type of Work: ☐ Cleaning of ditches, Length (in metres): _____

☐ Repair Works, (please provide details)

■ **Other Engineering Works,** please specify: Land suitability assessments of 16 Open Spaces

☐ **Deliver material:** Specify (Sand, gravel, rambler):_____

3. Engineering Assistance: Why

Please provide brief explanation of importance/impact of this engineering assistance, with specific description of who will benefit (Continue on separate sheet if necessary):

While the CCCM Cluster currently does not have the engineering capacity required to conduct land suitability assessments, the Cluster is requesting the support from the Canadian Military.

4. Requesting Organization: Contact person:

4.1 Full Name: / Title: CCCM Cluster Coordinator

4.2 Organization: International Organization for Migration

4.3 Cluster and Cluster Coordinator: CCCM

4.4 Mobile number :

Toolkit Pre-camp preparations

This chapter is meant to prepare site planners for deployment in situations where identifying safe locations for temporary settlements is one of the main responsibilities. It gives an overview of equipment and tools needed for preparing maps, conducting assessments and producing recommendations for interventions.

The UNHCR Shelter & Settlement Section (SSS) is working on developing a Physical Site Planning Toolkit which will include a collection of fundamental tools, both the hardware, software and the best practice tools needed to perform site planning activities in the field. This is meant to improve quality, streamlining methods and ensuring efficient communication (using data and common formats for plans and descriptions). The main items in the toolkit are:

- GPS Garmin map 64, for recording location (coordinates) of the sites
- Laptop computer with Autocad, Mapsource and Google Earth Pro software for making detailed drawings
- Digital camera with geo-reference (GPS)
- Measuring tape
- Scale ruler

In addition the toolkit will also include a catalogue of solutions and practices, including standard bills of quantities and similar tools for cost calculations, that can help site planners in making the right decisions on how to best develop a site. Standardizing the hardware and software used by site planners will harmonize communication and response.

Toolkit SiteVisits – Land Suitability Assessements

The GIS mapping exercise resulted in many potential sites. As pointed out earlier, the map and the physical terrain does not always match. As an example, we discovered that an area that looked like an open field on the map, matching all the predefined criteria, turned out to be a mining area, a corn-field, or a riverbed that would be flooded even if it was located 25 m from a nearby stream.

It can sometimes be difficult to find the site you are looking for, even if you have maps and GPS coordinates. , Many remote areas do not have roads with names, and some of the sites are not accessible due to the lack of infrastructure and challenging terrains. It proved to be useful to bring aerial photos, since few people are able to read terrain maps, but many will recognize places when looking at pictures. Site planning is not a one-person job. A site assessment should always be carried out by a team. Not only does it make it easier to take measurements, but it is important for quality assurance purposes. Comparing notes (literally) is very

important, as some information might get lost in the process- especially when covering large areas where it is easy to make mistakes and difficult to distinguish similar sites. Other important things to bring are:

- Printed maps/Aerial photos with GPS coordinates
- The Land Suitability Assessment Form
- Digital Camera
- GPS
- Measuring tape
- Camera
- Note book

Additional important resources for conducting site assessments:

- Bring a local interpreter. In order to prevent rumors from spreading among people already occupying the land, or other stakeholders, it is important to clearly communicate what the purpose of the visit is. A local interpreter can also help identifying social and cultural challenges, and point out other considerations that need to be taken into account.
- Before conducting the assessment try, if possible, to determine the land ownership of the proposed site. If there is not already an agreement beforehand with the local community to conduct the assessment, find out who the contact person is, and explain the mission.

Major Janie Desjardins and Officer from DART, together with local interpreter on site visit, conducting Land Suitability Assessment in the Sindhupalchowk district. Photo: Tone Selmer-Olsen

Recommenadtions and Costings

The unit produced a set of recommendations clearly identifying interventions needed in order to respond to identified risks. A detailed report for all sites identified and assessed by the unit, was produced. All reports are included in Part 2 Open Space. Each report includes: A description of site conditions; maps and visualizations; a list of interventions needed to establish safe living conditions; preliminary design, costing and labor needed for proposed interventions.

The site planning engineers, with experience from the building sector and with knowledge of the local market, were quickly able to propose appropriate engineering solutions based on locally available materials and construction techniques. They then calculated costs for each intervention, and gave an estimate for the required manpower, including a timeframe from start to completion. Below is an example of a complete report:

2.0 Cost Estimate for proposed improvement works					
Royal Nepal Golf Course					
Prepared by: IOM (Site Planning)					
S.N.	**DESCRIPTION OF WORKS**	**QUANTITY**	**UNIT**	**RATE**	**AMOUNT**
1	**SITE FENCE WORKS**				
	Supply and install 5 Ft high well seasoned bamboo fence with vertical bamboo post at every 8 Ft interval and other intermediate vertical post in every 2 Ft interval and horizontal bamboo strips at every 1.5 Ft interval in three layers as shown in figure and tied or nailed securedly with each other as per the instruction of Engineer in Charge.	15,000.00	SFt	20.00	300,000.00
2	**BAMBOO WALK WAYS**				
	Supply and fix well seasoned bamboos walk way inside the camp of width 1.5m (5 Ft) as access to each family tent and service tents, well fixed in its ground with hardwood pin, tied with longitudinal runner in there points and fabricated as shown in the approved drawing and/or as per instruction of Engineer	18,000.00	SFt	30.00	540,000.00
	TOTAL AMOUNT (NRs.)				**840,000.00**
	Tools and equipments				11,550.00
	GRAND TOTAL AMOUNT (NRs.)				**851,550.00**
	Grand Total Amount in USD (1 USD= NRs 102)				**8,348.53**

Example of costing's for done for site improvements in on the Open Space Site: Royal Nepal Golf Course

Conclusion

The main purpose of this report is to provide practical tools for pre-camp set up in future crises, and to support the CCCM Cluster and the Government of Nepal in its ongoing disaster preparedness planning (contingency plan). Open Space. These reports can be found in Part 2.

Initially the contingency plan was intended to:

1) Highlight the acute need for action
2) To list preparedness measures for avoiding anticipated negative consequences of the monsoon season
3) To provide background information for use by the CCCM Cluster
4) Clearly state the cost of interventions for the purpose of seeking funding from donors.
5) To enable potential implementing partners to determine their capacity/capability with regards to implementing proposed interventions.

Shortcomings in advocacy and response

The intentions of developing the contingency plan did not correspond with the anticipated outcome due to the lack of communication between the CCCM Cluster and the GoN. As such, the time and efforts that had been put into developing recommendations for interventions were not clearly communicated to the GoN.

Due to limited resources and available partner organizations, many districts where not covered in the response. Those are the districts of Kavrepalanchok, Dhading, Nuwakot, Rasuwa, Dolakha, Ramechhap, Okhaldunga, Makwanpur, Sindhuli, Dolakha.

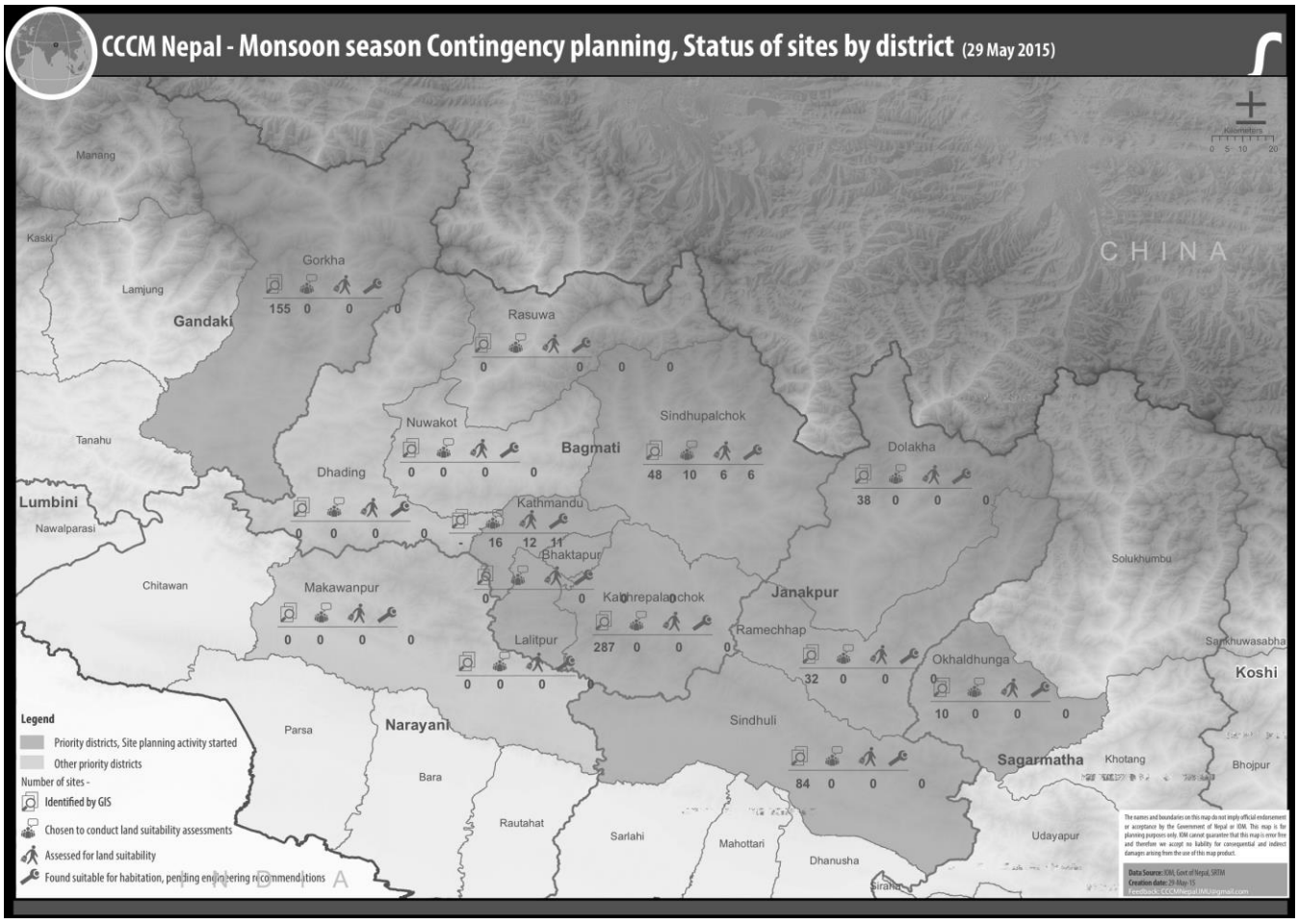
The local authorities in the Sindhupalchowk district requested the support of CCCM to assess potential sites closer to the even more vulnerable mountain areas, a task that the CCCM Site Planning Unit did not have the capacity to conduct without support from any other partners after the Canadian DART left the country.

Successful partner identification

The support from the Canadian DART proved to be invaluable. The collaboration between the DART and the CCCM Site Planning Unit demonstrated that civil-military coordination works. However, this collaboration came into being more or less by chance, and a dialogue and interaction between civilian and military actors were never facilitated for in Nepal. It also shows that even if there is a framework in place, it is not always functioning. There is a need for strengthening this collaboration, and as OCHA is already providing trainings in order to enhance the capacity and preparedness of national and international partners, more humanitarian actors should participate to better understand the value of civil-military coordination.

Tools and continued support to the Government of Nepal

The annexes added in this report include: the CCCM Site Planning Unit's contingency plan for four districts: Land Suitability Assessment reports; Recommendations, costings and findings for each assessed sites. As additional support to the contingency plan for the GoN, this is valuable also in the future.


CCCM Nepal - Monsoon season Contingency planning, Status of sites by district (29 May 2015)
CHINA
Manang
Kaski
Lamjung
Gandaki
Gorkha
155 0 0 0
Rasuwa
0 0 0 0
Tanahu
Nuwakot
Bagmati
Sindhupalchok
0 0 0 0
48 10 6 6
Dolakha
38 0 0 0
Dhading
Lumbini
Nawalparasi
0 0 0 0
Kathmandu
- 16 12 11
Bhaktapur
0 0
Solukhumbu
Chitawan
Makawanpur
0 0 0 0
Kabhrepalanchok
Janakpur
Ramechhap
287 0 0 0
Lalitpur
0 0 0 0
Okhaldhunga
32 0 0 0
10 0 0 0
Sankhuwasabha
Koshi
Parsa
Narayani
Sindhuli
Sagarmatha
Khotang
Bhojpur
84 0 0 0
Bara
Rautahat
Sarlahi
Mahottari
Dhanusha
Udayapur
Siraha
Legend
Priority districts, Site planning activity started
Other priority districts
Number of sites -
Identified by GIS
Chosen to conduct land suitability assessments
Assessed for land suitability
Found suitable for habitation, pending engineering recommendations
Kilometers
0 5 10 20
The names and boundaries on this map do not imply official endorsement or acceptance by the Government of Nepal or IOM. This map is for planning purposes only. IOM cannot guarantee that this map is error free and therefore we accept no liability for consequential and indirect damages arising from the use of this map product.
Data Source: IOM, Govt of Nepal, SRTM
Creation date: 29-May-15

Refrences

Camp Coordination and Camp Management, The Camp Management Toolkit

http://cmtoolkit.org/

The Sphere Project, 2011 Humanitarian Charter and Minimum Standards in Humanitarian Response

http://www.sphereproject.org/handbook

The UNHCR Emergency Handbook

List of Acronyms

IDP: Internally displaced person

NRC: Norwegian Refugee Council

NORCAP: Norwegian Capacity

IOM: International Organization for Migration

CCCM: Camp Coordination Camp Management

GoN: Government of Nepal

UNHCR: The UN Refugee Agency

OCHA: Office for the Coordination of Humanitarian Affairs

UNOPS: The United Nations Office for Project Services

UN CMCoord: United Nations Humanitarian Civil-Military Coordination

DART: The Disaster Assistance Response Team

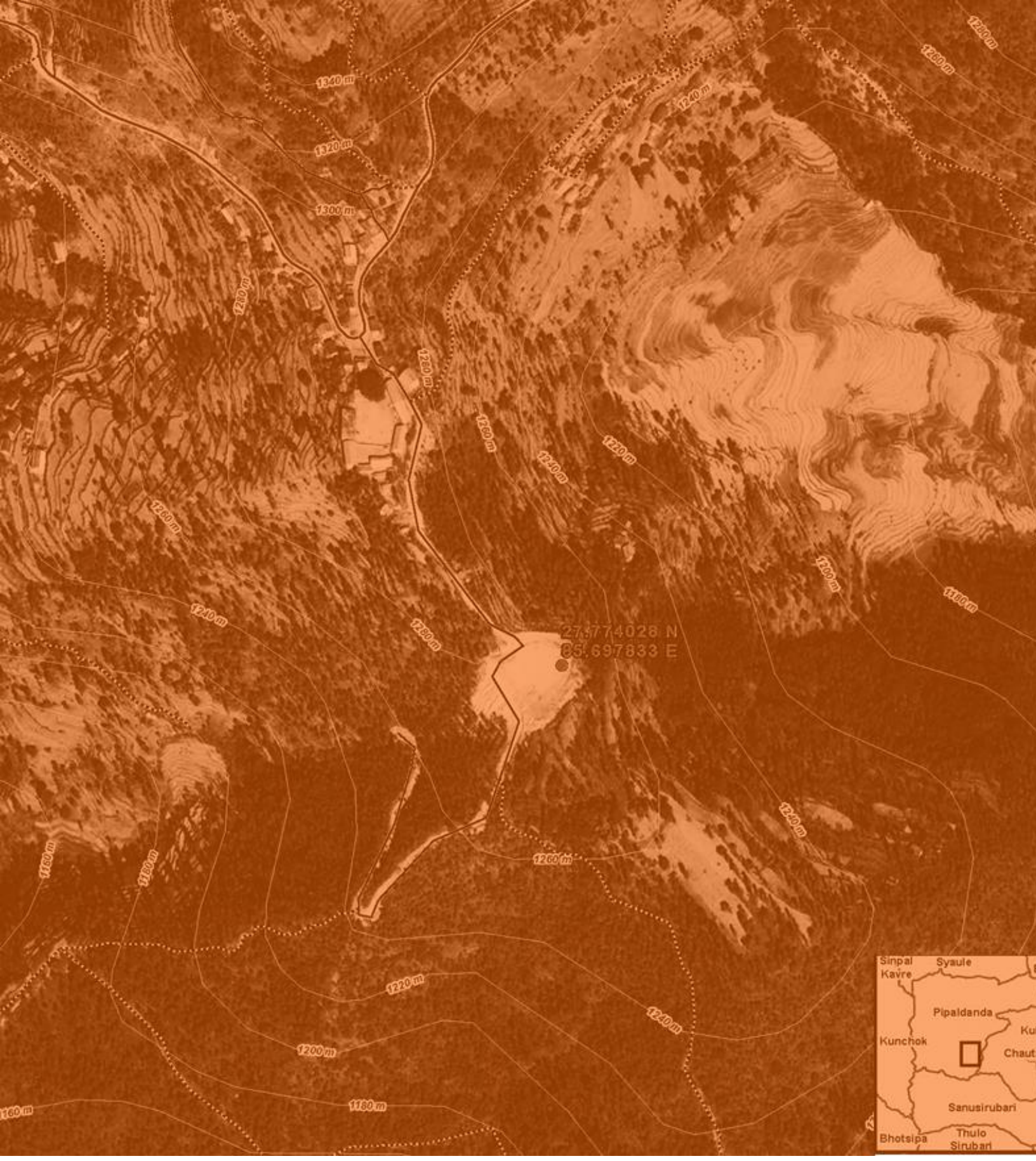
GIS: Geographic Information System

GPS : Global Positioning System

DTM: Displacement Tracking Matrix

CDO: Chief District Officer

VDC: Village development committee



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