DISASTER PREPAREDNESS AND RESPONSE PLAN FRAMEWORK FOR SAFE DRINKING WATER IN KATHMANDU VALLEY, LALITPUR SUB-METROPOLITAN CITY

A Summary Report on

THE SELECTED EVACUATION SITES AND DEEP TUBE WELLS

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1 INTRODUCTION

This is a summary report on The Selected Evacuation Sites and Deep Tube Wells under the project **"Disaster Preparedness and Response Plan Framework (DPRP) for Safe Drinking Water in Kathmandu Valley, Lalitpur Sub- Metropolitan City, Nepal"**.

2 BACK GROUND

Nepal is among the countries with the highest seismic risk in the world. It is ranked as the eleventh at most risk countries in the world (UNDP/BCPR, 2004). Further, a comparative study of 21 cities in seismically hazardous area in the world shows the seismic risk of Kathmandu Valley as the highest (GESI, 2001).

The Kathmandu Valley Earthquake Risk Management Project (KVERMP) implemented by National Society for Earthquake Technology-Nepal (NSET) has estimated a damage of 60% building stocks and 40,000 deaths in a scenario earthquake of intensity IX MMI. Another study, the Study on Earthquake Disaster Mitigation for Kathmandu Valley (JICA, 2001) has estimated about 18,000 deaths with a scenario earthquake of MMI VIII. A more detail study, a study on Seismic Vulnerability of Drinking Water Supply in Kathmandu Valley carried out by NSET with the support from UNICEF has estimated that most part of the valley will be without piped water supply for several months and several areas could remain without water service for over one year (NSET, 2003).These very high estimates on the possible casualty and the building damage rate demands an urgent need of earthquake risk reduction and preparedness.

3 CURRENT INITIATIVE

In this connection, the project Disaster Preparedness and Response Plan Framework (DPRP) for Safe Drinking Water in Lalitpur Sub-Metropolitan City (LSMC) is launched (Oct 2006- May 2007) by UNICEF in joint collaboration with NSET and LSMC. The main objective of the project is to contribute to the Disaster Preparedness and Response of LSMC by building capacities. To achieve the objective, a team is working together to develop an outline of a Disaster Preparedness and Response Framework, Identifying the potential evacuation sites within LSMC, selecting existing tube wells, which are accessible to the identified evacuation sites and making them earthquake resistant. In this regard the project team is working in close coordination with LSMC and other Key-Stakeholders ensuring their involvement in all steps.

4 TECHNICAL BASIS FOR THE SELECTION OF EVACUATION SITES AND DEEP TUBE WELLS

To identify the potential evacuation sites, first, the project identified the open spaces excluding private agriculture lands within LSMC and closely observed conducting a field visit. Then the potential evacuation sites were identified mainly considering the population holding capacity, accessibility, water availability and sanitary condition.

As CBS 2001 has recorded total 162,991population of LSMC, it is estimated to be about 200,000 by 2007. Further, displaced population due to a major earthquake (Intensity IX) is estimated to be 78,200. On the other hand, total population holding capacity of the identified evacuation sites appears only 57,435 persons. This is calculated considering 9 m2 space for a person, assuming 5 persons in a family and one family can adjust within 45 m2 in

emergency. Likewise, the water required for the evacuated population in the recommended evacuation sites is calculated 861,527 liters per day according to SPHERE standard (15 liters/person/day). And hence the project identified existing deep tube wells within LSMC and selected 5 wells, producing 2,175,120 liter water in ten hours pumping, as the potential emergency water sources considering discharge rate, water quality, accessibility to the evacuation sites, current status and ownership. The evacuation sites were identified as the clusters for making easier to provide services during emergency (Table 1).

Table-1:Selected Evacuation Sites: Location, Area, Population Holding Capacity and Required Water, and Deep Tube Wells and their Discharge Capacity

Identified Evacuation Sites within LSMC							Discharge from the Selected Deep Tube Wells			
Main Clusters	**Location**	**Total Area (m^2)**	**% of Area Usable**	**Area Usable (m^2)**	**Population Holding Capacity**	**Water Required (liter/day)**	**Deep Tube Wells**	**Liter/ Sec.**	**Ltr./10 hrs.**	**Total Discharge/ 10 Hrs.**
IoE- UN Park Area	UN Park, Gusingal	72,978	70	51,084	5,676	85,141	IoE	9.1	327,600	
	UN Park, Jwagal	50,492	80	40,394	4,488	67,323	UN Park, Jwagal	8.33	299,880	
	Institute of Engineering (IoE)	173,058	50	86,529	9,614	144,215				
	Total-IoE-UN Park Area	**296,528**		**178,007**	**19,779**	**296,679**				**627,480**
Balkumari Area	ANFA Football Ground Satdobato	4,786	90	4,307	479	7,179				
	Ring Road (Satdo-Gwarko)	94,672	15	14,201	1,578	23,668	NWSC, Balkumari	28	1,008,000	
	Gokul Chour, Balkumari	41,413	60	24,848	2,761	41,413				
	ANFA Football Ground, Chyasal	59,344	90	53,410	5,934	89,016				
	Total-Balkumari Area	**200,216**		**96,766**	**10,752**	**161,277**				**1,008,000**
Lagankhel-Khumaltar Area	Patan Industrial Estate (PIE)	140,115	20	28,023	3,114	46,705	NARC	8.33	299,880	
	NARC, Khumaltar	447,396	45	201,328	22,370	335,547	PIE	6.66	239,760	
	Lagankhel Playground	14,213	90	12,792	1,421	21,320				
	Total-Lagankhel-Khumaltar Area	**601,725**		**242,143**	**26,905**	**403,572**				**539,640**
Total		**1,098,469**		**516,916**	**57,435**	**861,527**				**2,175,120**

SPHERE Standard and assumptions

Per person Sq. m. area (in case of covered hall)	3.5
Per person Sq. m. area (in case of open area/ temporary shelter)	45
Average family size=5, and 45 sq m. area for a family and therefore, sq meter area per person	9
Water requirement in emergency (liter/person)	15

5 DISCUSSION ON THE SELECTED EVACUATION SITES AND DEEP TUBE WELLS DURING A WORKSHOP

The results were presented in a workshop (31 October 2006) participating the Executive Officer of LSMC, Chief District Officer of Lalitpur District, Joint Secretary of MOLD, Chief of CWE/UNICEF, DG of DWSS, Joint Secretary of MPPW, President of NSET and representatives from NWSC, Red Cross, media sources and local community groups. The workshop discussed on the results and built consensus on the identified evacuation sites and selected deep tube wells. Further, the project team individually discussed with the stakeholders (owners of the selected deep tube wells) and finally decided to carry out detail assessment and strengthen the following five deep tube wells.

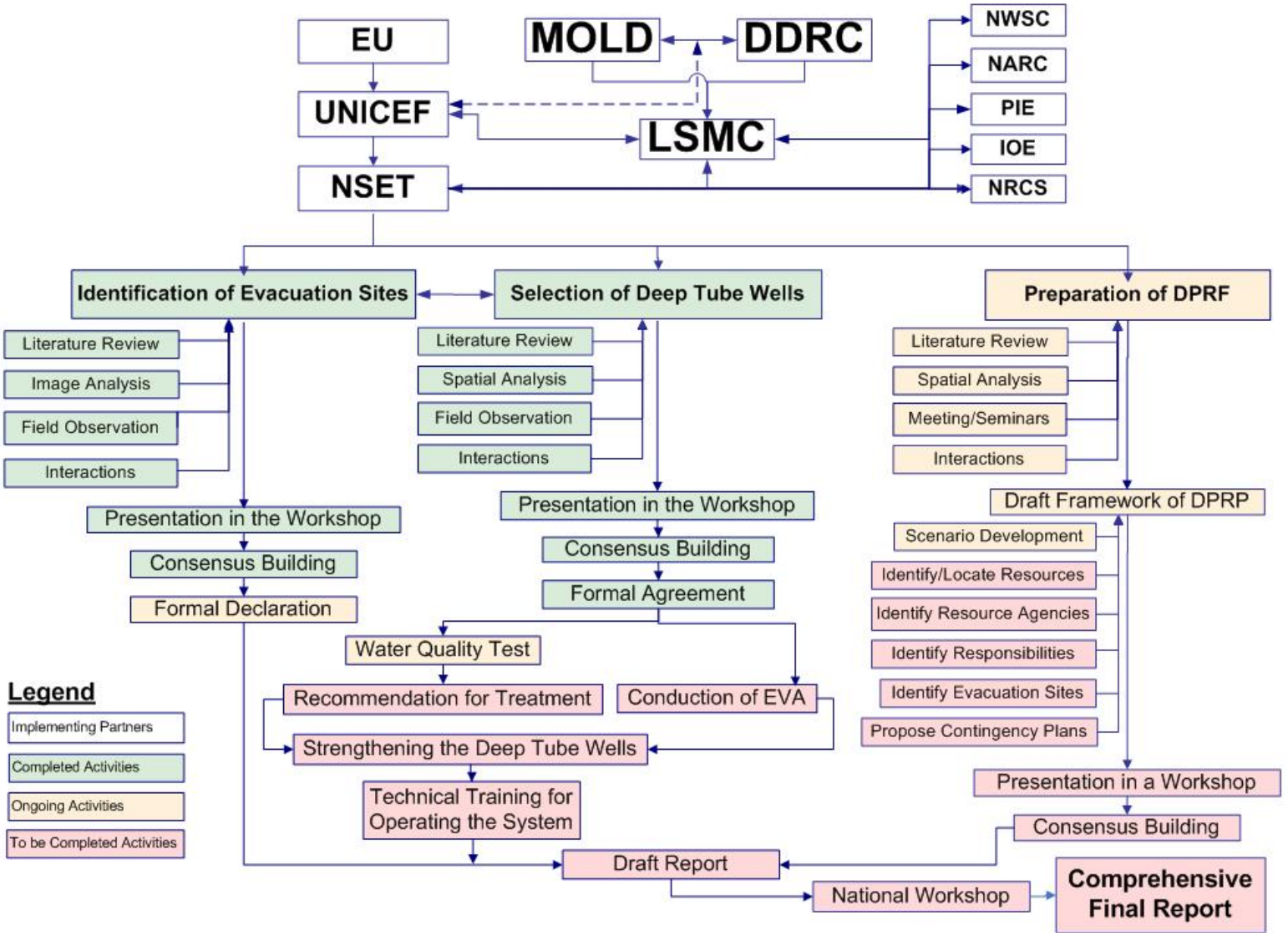
1. Water Pumping Station in Patan Industrial Estate (PIE), Lagankhel
2. Jwagal Pumping Station of NWSC
3. Balkumari Pumping Station of NWSC
4. Pumping Station of National Agricultural Research Institute (NARI), Khumaltar
5. Pumping Station of Institute of Engineering (IoE), Pulchowk

6 NEED FOR CONSINSUS AND FORMAL DECLERATION OF EVACUATION SITES AND DEEP TUBE WELLS

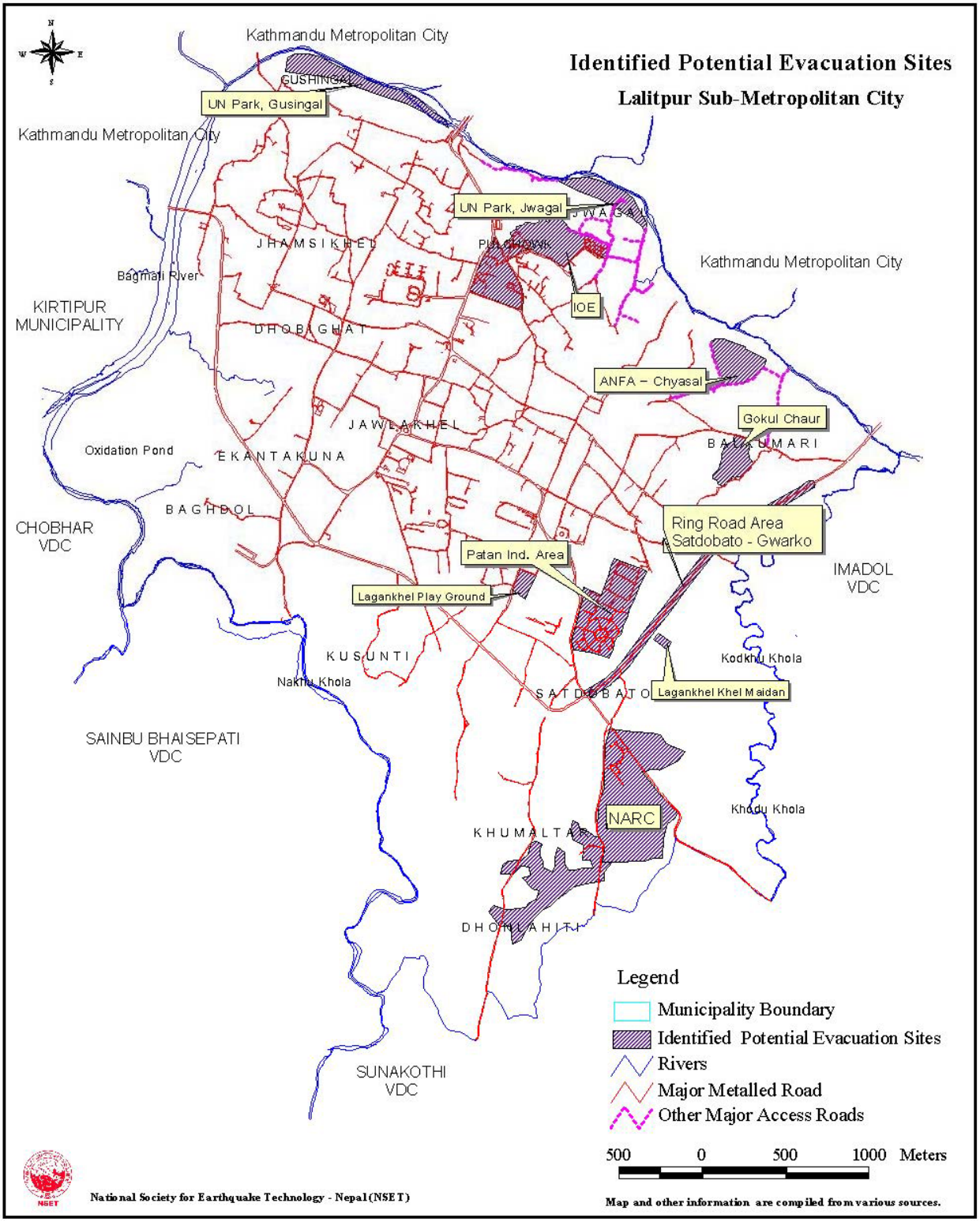
In this regard, NSET, UNICEF and LSMC with other stakeholders, are working for the preparation of Disaster Response Framework and detail assessment and retrofitting the selected deep tube wells. However, it is most important to formally declare the proposed sites as the evacuation sites for emergency by the concerned organizations. For the effective management of emergency, preparedness is prerequisite and the effort from all is most important for the effective preparedness.

7 ANNEXES

Annex-1: Conceptual Framework of the Project: DPRP



Annex-2: Selected Potential Evacuation Sites



Annex-2: Selected Deep Tube Wells