

Water, Sanitation and Hygiene Sector Report

Executive Summary

The Post-Disaster Needs Assessment (PDNA) for the Water, Sanitation and Hygiene (WASH) Sector was part of the broader PDNA conducted for all sectors under the overall leadership of the National Planning Commission. It was a joint exercise of the Government and the Development Partners, and has been guided by the Ministry of Urban Development (MoUD) with technical support from the Department of Water Supply and Sewerage (DWSS). The overall objective of this assessment was to take stock of the damages and change in economic flows faced by the sector as a result of the 7.8 magnitude of 25 April earthquake and its aftershocks, and provide estimates of the recovery and reconstruction needs using the principle of ‘building back better’.

The damages and change in economic flows for the sector were calculated by DWSS based upon rapid assessment surveys undertaken by Districts Divisional- and sub-Divisional Water Supply and Sanitation Offices in the 14 severely affected districts where emergency was declared by the government. A data quality assurance exercise was carried out between 23 - 28 May 2015 by three Sector Assessment Teams led by Embassy of Finland, JICA and the Rural Water Supply and Sanitation Fund Development Board who visited 9¹ of the affected districts. These field visits not only verified data from the rapid assessments, they also gained additional insights into the extent of damage to physical infrastructure and assets and gained a better understanding of the broader effects of the disaster on water supply and sanitation services delivery and governance mechanisms, as well as emerging risks and vulnerabilities. This assessment also includes estimates for damage and change in economic flows for additional 17 districts² that were classified by the government as moderately impacted by the earthquake. In addition, consultations were held with representatives of relevant line agencies and development partners to better understand the effects of the disaster on the functioning of the water and sanitation sector and to solicit their suggestions for formulating recovery strategies and needs.

The net total value of damages and change in economic flows to the water and sanitation sector is estimated at **NPR 11.4 billion** at pre-disaster prices. Of this, the damage to infrastructure and physical assets is estimated at **NPR 10.5 billion**. The total needs for recovery and reconstruction using the principle of building back better is estimated at **NPR 18.1 billion**, of which 25% is needed for FY 2015-16, 40% for FY 2016-17 and 35% for FY 2017-18. The specific needs are described in more detail in the body of this report.

From WASH PDNA assessments it is clear that safe water supply and sanitation needs are considered of highest priority by affected populations, in addition to food and shelter. This priority is further amplified by risks of diarrhoeal diseases outbreaks among these populations from imminent monsoon. The following principles will be pursued: alignment to approved institutional systems, standards and procedures of the sector; cost-effectiveness that is accountable to both central and local oversight; gender sensitivity and social equitability of service delivery that takes the human rights based approach to reach the unserved; and, adapting technology and service levels to local contexts. Likewise, it is central to fully engage the inter-cluster cooperation in this effort.

Furthermore, the WASH sector damage and change in economic flows assessment covers communities that have been impacted by the earthquake. However, there remains approximately 788,000 population (13%) in the

¹ Dhading, Dolakha, Gorkha, Kavre, Lamjung, Nuwakot, Ramechhap, Rasuwa, Sindhupalchowk.

² Arghakhanchi, Baglung, Bhojpur, Chitawan, Dhankuta, Gulmi, Kaski, Khotang, Lamjung, Myagdi, Nawalparasi, Palpa, Parbat, Syangja, Solukhumbu, Sankhuwasabha, Tanahun,

14 most impacted districts not served in any manner prior to the earthquake. The cost of providing WASH services to this un-served population is approximately NPR 7.9 billion.

Pre-Disaster Situation

The Ministry of Urban Development (MoUD) is the lead ministry for the Water Supply, Sanitation and Hygiene sector. Its main operational agency, the Department of Water Supply and Sewerage (DWSS), was established in 1972. The DWSS operates through a network of 5 regional offices, 48 divisional offices and 22 sub-divisional offices, and has a total staff of 1,660 including 170 professionals. It supports the implementation of rural and small town water supply schemes. In recent years, DWSS at national level has taken on sector support and regulatory roles.

At the district level, the District WASH Coordinating Committee (DWASHCC) is the main instrument for the planning, coordination and monitoring of WASH infrastructure development, including leading the “open defecation free” (ODF) campaigns together with other local government agencies. The District Technical Office (DTO) as part of the local authority structure of the Ministry of Federal Affairs and Local Development (MoFALD) undertakes smaller WASH projects and supports minor repairs in accordance with decentralization policies including water supply. It is guided by the Department of Local Infrastructure Development and Agriculture Roads (DoLIDAR) in MoFALD. The Rural Water Supply and Sanitation Fund Development Board (RWSSFDB), under MoUD, promotes demand-led rural water supply and sanitation services using non-governmental and private organizations as implementing partners. As of 2015, the Fund Board operates under the guidance of the respective District Development Council (DDC) /DWASHCC.

The Kathmandu Valley Water Supply Management Board (KVWSMB) is an autonomous government body that reports to MoUD. It is responsible for developing and overseeing service policies, and providing licenses to service providers for the operation and management of water supply and sanitation service system in Kathmandu Valley (comprising the districts of Kathmandu, Lalitpur, and Bhaktapur). Its main contracted service provider is Kathmandu Upatyaka Khanepani Limited (KUKL). The Nepal Water Supply Corporation (NWSC) provides water services to some 21 towns in Nepal, some of which are also in the affected areas (e.g. Banepa, Kavre, etc.). Water supply services in the Kathmandu Valley are being upgraded through the Melamchi Project.

There are several important prevailing sector policies and strategies including the Rural Water Supply and Sanitation National Policy, Strategy and Sectoral Strategic Action Plan 2004, that sets a National goal of universal water supply and sanitation coverage by 2017, and makes provision to allocate 20% of the WASH sector budget for sanitation and hygiene promotion. There is also the Urban Water Supply and Sanitation Policy 2009, and the Sanitation and Hygiene Master Plan 2011 that emphasises the elimination of open defecation and total behaviour change with regard to sanitation and hygiene. Community Led Total Sanitation (CLTS) is now the main approach to sanitation, with its focus on behaviour change and a no-subsidy principle.

The WASH Umbrella Act and Comprehensive WASH policy is being formulated to streamline the sector, address institutional fragmentation, overlapping responsibilities and project driven modalities. Improvements in coordination among government WASH actors, donor agencies, UN and (I)NGOs is raising sector quality and facilitating a gradual movement towards a sector wide approach. Following the Second Joint Sector Review (April 2014), which drew together sector specific thematic priorities, the outline of a Sector Development Plan

(SDP) was shared with stakeholders in 2014 for review. The key objective of SDP is to enhance coherence and harmonization in the sector aligned to government policies and strategies. At the same time, the Terms of Reference for the Sector Financing Strategy was approved by the Government. However, preparation of the Strategy is expected to be delayed because of the earthquake until third quarter of 2015.

The 2015 update of the Joint Monitoring Programme (JMP), reports that 92% of Nepal’s population have access to improved drinking water, and 46% have access to improved sanitation³. The sustainability of drinking water systems however remains a priority concern for the sector. According to DWSS/NMIP data for 2012, just 25% of water schemes were functioning well; 36% need minor repair, 9% need major repair, 20% need rehabilitation, 9% need reconstruction, and 1% are non-functional. The underlying causes of the low rates of functionality can be attributed in part to inadequate management of operation and maintenance. Just 31.5% of schemes have a Water Supply and Sanitation Technician (WSST), only 38% of the schemes have registered Water and Sanitation Users Committees (WSUC), and less than 5% have an O&M fund. Considering the overall functionality of schemes, effective coverage of water supply is only 40% without even accounting for water quality. Nepal needs to significantly increase its performance to realize national target of universal access to basic water supply by 2017.

The recent Multiple Indicator Cluster Survey (MICS survey 2014) and the DWSS database, suggest that there has been a significant acceleration in sanitation progress both in terms of access to improved sanitation and, very importantly, a substantial decrease in open defecation. So far 21 districts have been declared ODF, and a further 21 districts have reached more than 50% ODF status. The main challenge lies in accelerating the sanitation movement nationwide, equitable targeting, achieving total sanitation and sustaining sanitation outcomes and behaviour.

With ongoing rural to urban migration coupled with newly demarcated municipalities, the urban population in Nepal today stands at 38%, up from 17% in 2014. This requires a more in-depth planning in new urban areas so as to provide appropriate levels of water supply and sanitation and also, to assure compliance with the “Urban Water Supply and Sanitation Policy 2009”.

TOTAL WATER						TOTAL SANITATION				
Estimated coverage 2015 update						Estimated coverage 2015 update				
Year	Total improved	Piped onto premises	Other improved	Other unimproved	Surface water	Year	Improved	Shared	Other unimproved	Open defecation
1990	66%	6%	60%	27%	7%	1990	4%	2%	6%	88%
1995	72%	9%	63%	22%	6%	1995	13%	6%	5%	76%
2000	77%	13%	64%	18%	5%	2000	22%	9%	5%	64%
2005	82%	17%	65%	14%	4%	2005	30%	12%	5%	53%
2010	87%	21%	66%	10%	3%	2010	38%	15%	5%	42%
2015	92%	24%	68%	6%	2%	2015	46%	18%	4%	32%

Table: Access to improved drinking water and sanitation in Nepal (JMP Update 2015 – in press)

The safety of the drinking water is another issue that must be addressed. The 2014 MICS survey included water quality testing and found that 71% of drinking water sources, and 82% of household stored water were contaminated with *E.coli* (≥ 1 cfu/100ml). This will require both technical and social interventions.

³ NMIP/DWSS estimate for water supply coverage is 85% and for sanitation is 70%.

Equity of access to water and sanitation services is an important concern, as access varies significantly according to location, wealth quintile, ethnicity, and level of education. For example, the 2014 MICS survey finds that access to piped water in the household or yard is 55% in the wealthiest population quintile, compared to 16% in the poorest quintile; open defecation is practiced by 39% of households with no education versus 8% of households with the highest level of education, and open defecation is much more widespread in rural areas (31%), than urban areas (6%). Access to improved drinking water in the Mid-Western Mountain and Mid-Western Hill regions lags behind other regions by around 15%, and with regard to improved sanitation it is the Eastern Terai and Central Terai regions where least progress has been made.

Post Disaster Situation Narrative describing the effects on four dimensions:

Infrastructure & assets

In the 14 severely affected districts, the vast majority of the 11,288 water systems are gravity-fed, with springs or streams as the source. A substantial number of these have suffered either partial damage, or have been completely destroyed. It is estimated that around 1,570 systems have been totally damaged, and a further 3,663 systems have suffered partial damage that requires repair. More than 90% of the damaged schemes are rural, though is mainly because urban schemes are fewer in number and serve larger populations. The earthquake caused multiple impacts to the water supply schemes. There are many reports of water sources either drying up completely or re-emerging at lower elevations. In a few cases it has been reported that the source flow has increased. Problems with water quality have mostly been due to increased turbidity as a result of damage to intake works or transmission pipelines. Landslides have caused much of the damage leading to blockage of intake works, and carrying away sections of pipeline - including buried pipeline in some cases. Structural damage to reservoirs and break-pressure tanks has resulted in leakage; overhead reservoirs and tap stands have also been damaged and are no longer structurally sound. The nature of damage to both rural and urban systems is similar.

Access to sanitation has been severely affected by the earthquake. In urban areas most households have toilets located within the house, and thus the collapse of housing has led to a total loss of sanitation facilities. In rural areas the situation is slightly different. Although some households have adjoining toilets or have incorporated them into the house structure, it is more common that toilets are sited within the household yard. Nevertheless, there has been substantial loss of toilets in rural areas. One difference, though, is that toilets built in the yard are more likely to have the sub-structure intact, and could potentially be rebuilt. It is estimated that in these 14 districts approximately 220,000 toilets have been partially or totally destroyed.

Office buildings of DWSS and other water and sanitation service providers have also been damaged in many districts. The assessment reports that six DWSS buildings have completely collapsed, and a further 47 have suffered partial damage. It has not been possible to assess the extent of damages and change in economic flows to equipment such as office furnishings, computers, etc.

Effects on production of goods and services and access to services

As a consequence of partial or total damage to water supply systems and sanitation, many socio-economic effects have been observed and assessed. Economic loss is likely to occur through the non-collection of revenues

(water user fees) by service providers such as KUKL in Kathmandu Valley, and by WSUC in rural communities. Reduced revenue collection is partly due to the disruption of water supplies but also because of financial hardship among the affected population, a proportion of whom will be unable to pay water user fees.

In both urban and rural areas households are generally required to pay for water supply connections, and in urban areas also for water meters. Given the level of destruction to households it is very likely that new connection fees will be charged to cover labour and materials costs. This constitutes a loss of investment by the householder. Similarly, a large proportion of households have lost the investment made in the construction of toilets, and especially so in the predominantly rural population. Many households take out small loans to build their toilets, and are unlikely to see these debts waived even though they have lost their investment.

In rural areas, communities are expected to contribute to the capital costs of the water system through providing labour, materials and in some cases a cash contribution. Regardless of whether the water system needs repair, reconstruction or relocation, communities will be expected to contribute to the overall investment costs. Where this involves contributing labour or providing local materials, it represents an opportunity cost to the household.

Livelihoods have been impacted through the disruption to the water supply, including loss of wages among village water system caretakers, restaurant businesses, rearing of livestock and poultry, and cultivation of cash crops.

Women have reported that where serious damage to the water system occurred, they are walking between 1 – 3 hours to collect water from alternative sources. Water collection is often for both household members and livestock, incurring a time, energy and child care cost. Additionally, women in focus group discussions observed that disruption to water supply and loss of sanitation facilities has compromised personal hygiene including menstrual hygiene management. The impact to women's dignity through loss of access to sanitation is not yet measurable. Neither is it feasible to quantify the quality of life impacts on children, the elderly, infirm and disabled population through the disruption to water supply and sanitation services.

Effects on sector governance functions and systems

As mentioned above, the earthquake led to significant damage to DWSS and WSUC offices, furnishings and equipment. In some cases staff have had to move into temporary office space or operate from tents. System records, work plans, and other essential documents have been lost in some districts. In order to support the assessment and recovery process, DWSS has temporarily moved staff from non-affected districts resulting in reduced service capacity in those districts. Given the scale of the disaster, individuals involved in water supply and sanitation administration, operation and maintenance, and governance such as members of the WSUC are less available to the recovery process due to the demands of managing their own personal and family needs. In order to deliver on the build back better principle in the recovery strategy, capacity building of staff will be required especially in the area of risk reduction and disaster preparedness.

Increased risks and vulnerabilities

The disruption to water supply and sanitation services is not only inconvenient but presents several increased risks and vulnerabilities. Foremost among these is the public health risk and the prospect of diarrhoeal disease outbreaks. The difficulties in maintaining good personal hygiene practices, the reduced access in sanitation and

thereby increase in open defecation, and the deterioration in water quality all combine to substantially increase the risk of faecal-oral disease. The water-related impacts to livelihoods leaves people more vulnerable to disease through reluctance to spend scarce financial resources on medical treatment, and may subsequently lead to reduced household productivity. Infants and young children under-five years of age are particularly vulnerable to diseases associated with poor hygiene practices, unsanitary conditions and unsafe drinking water as these further undermine their health and nutrition status. Girls and women may face additional risks of violence and sexual abuse due to the lack of access to gender separated, and safe toilets in schools, or through having to walk long distances to alternative water sources, or when seeking privacy to defecate in the open.

Summary table of estimates of Damage and Change in economic flows (USD)

Sector	Damages, NRs	Losses, NRs	Total effects, NRs	Total effects, USD
14 severely affected districts				
Water Systems	5,571,802,656.0	579,875,557.1	6,151,678,213.1	61,516,782.1
Sanitation	1,195,746,350.0		1,195,746,350.0	11,957,463.5
Sub-total	6,767,549,006.0	579,875,557.1	7,347,424,563.1	73,474,245.6
Other 17 affected districts				
Water Systems	2,822,337,000.0	293,523,048.0	3,115,860,048.0	31,158,600.5
Sanitation	915,835,772.1	-	915,835,772.1	9,158,357.7
Sub-Total	3,738,172,772.1	293,523,048.0	4,031,695,820.1	40,316,958.2
Total	10,505,721,778.1	873,398,605.1	11,379,120,383.3	113,791,203.8

Damage and losses of the severely affected 14 districts

Name of district	Water damages (NRs)	Sanitation damages (NRs)	Losses (NRs)
Okhaldhunga	29,430,000.0	54,500,000.0	12,405,310.4
Ramechhap	931,489,475.0	136,250,000.0	16,987,556.3
Sindhuli	17,467,250.0	32,700,000.0	24,829,398.4
Kavre	344,870,039.1	141,700,000.0	32,017,292.6
Dolakha	1,095,678,900.0	114,450,000.0	15,638,835.9
Sindhupalchok	838,114,080.0	125,350,000.0	24,125,740.1
Kathmandu	67,852,500.0	68,277,600.0	236,193,564.0
Lalitpur	131,422,857.1	61,590,450.0	63,391,371.3
Bhaktapur	191,295,000.0	93,522,000.0	41,253,844.3
Rasuwa	65,400,000.0	38,150,000.0	3,629,783.9
Nuwakot	426,920,300.0	119,900,000.0	23,260,040.8
Dhading	588,835,817.3	26,781,300.0	28,172,068.9
Makwanpur	426,918,937.5	62,675,000.0	35,248,051.8
Gorkha	416,107,500.0	119,900,000.0	22,722,698.6
Total of 14 districts	5,571,802,656.0	1,195,746,350.0	579,875,557.1

Damage and losses of other moderately affected 17 districts

Name of district	Water damages (NRs)	Sanitation damages (NRs)	Losses (NRs)@ 10.4% of damages in the 14 districts
Dhankuta	155,652,000.0	41,001,440.0	16,187,808.0
Khotang	212,877,000.0	29,448,393.2	22,139,208.0
Solukhumbu	85,837,500.0	11,083,582.2	8,927,100.0
Tanahu	262,090,500.0	85,331,740.0	27,257,412.0
Baglung	199,143,000.0	67,015,380.0	20,710,872.0
Gulmi	230,044,500.0	63,767,309.9	23,924,628.0
Parwat	149,929,500.0	38,910,820.0	15,592,668.0
Palpa	254,079,000.0	46,701,028.2	26,424,216.0
Nawalparasi	62,947,500.0	63,437,476.8	6,546,540.0
Myagdi	76,681,500.0	30,222,430.0	7,974,876.0
Chitwan	43,491,000.0	72,128,025.0	4,523,064.0
Lamjung	135,051,000.0	45,832,320.0	14,045,304.0
Kaski	171,675,000.0	136,750,310.0	17,854,200.0
Syangja	252,934,500.0	73,927,244.4	26,305,188.0
Bhojpur	180,831,000.0	28,940,461.4	18,806,424.0
Sankhuwa Sabha	137,340,000.0	30,297,471.1	14,283,360.0
Arghakhanchi	211,732,500.0	51,040,340.0	22,020,180.0
Total of other 17 districts	2,822,337,000.0	915,835,772.1	293,523,048.0

Impact Analysis on development goals of the sector including potential social impacts of the event

The effects of the earthquake represent a major setback for the water and sanitation sector. In particular, achieving the national target of “Water and Sanitation for All by 2017” is now clearly in doubt. Of particular concern is the impact to the momentum and success of the Social Movement for Sanitation. As mentioned earlier, sector monitoring and the MICS 2014 survey indicate that the efforts to eliminate open defecation are paying dividends with an accelerated trend in the number of VDCs being declared ODF. While concern about lost sanitation facilities has been widely voiced, households that have lost everything will inevitably place sanitation as a lower priority over rebuilding their homes and livelihoods. The sanitation situation for recovery is complicated partly because of the no-subsidy principle, which may significantly delay the resumption of current progress towards sanitation targets. Equally the national target to achieve universal access to water supply by 2017 will be extremely difficult to achieve given the magnitude of damage to water supply schemes. This may require a reconsideration of the existing zero subsidy policy for sanitation towards some form of household incentives, given their severe change in economic flows in this regard.

Sector development with regard to policy development, strategy review and institutional reform will also be setback. Government and development partner stakeholders that have been putting in place the building blocks

for the Sector Development Plan, have recognised that this process will be delayed but is still expected to be completed during 2015.

The linkages between livelihoods and water supply have been addressed earlier but prolonged disruption to water and sanitation services can be expected to have a disproportionate impact on women and girls through the ‘social costs’ incurred through the time and energy spent collecting water, threat of violence and sexual harassment, diminished child care, reduced school attendance, dignity and self-esteem.

Recovery and Reconstruction Strategy for all the effects

The recovery and reconstruction strategy is based on the principles of DRR and build back better. It aims to return the sector to a better and more resilient state than the pre-earthquake status as quickly as possible, and enable it to resume progress towards achieving the national goal of universal access to water supply and sanitation. The strategy is not only intended to restore infrastructure and governance but also ensure that the sector as a whole is more resilient, that access to water and sanitation services are more equitable, that services are developed to a higher standard, and that governance is strengthened through enhancing sector coordination, professionalism and accountability.

Short-term activities will build on the ongoing emergency response and run through to the end of 2015. In this regard, the WASH cluster has begun planning on how to transition its work into the normative WASH development structures at National and District levels. Priority activities through end of 2015 will include temporary or provisional repairs to water systems, rebuilding of toilets and hand-washing facilities through a resumption of the CLTS total behaviour change approach, household water treatment, restore and strengthen institutional capacity to coordinate and implement short-term recovery needs, and undertake disaster preparedness measures. The latter is in reference to the monsoon season which is widely expected to induce landslides causing further disruption to water supply. Given the heightened risk of diarrhoeal disease outbreaks due to the reduced access to water supply and sanitation, it is imperative that short-term activities give priority to the most vulnerable communities. The short term activities in sanitation and hygiene will be further informed by the ongoing Sanitation and Hygiene Assessment at District level, initiated by the National WASH Sector, which will further compliment and add depth to the PDNA WASH assessment of toilet damages. The following table summarises the main short-term activities (June to December 2015), details of which will be worked out prior to intervention.

Priority Recovery Needs	Interventions	Expected Outputs	Intended Outcomes
Reconstruction of toilets and hand-washing facilities	<ul style="list-style-type: none"> Incentivise households to rebuild toilets and hand-washing facilities through cash or materials support 	<ul style="list-style-type: none"> n thousand toilets and hand-washing facilities re-built 	<ul style="list-style-type: none"> n thousand people have access to sanitation and hand-washing facilities Reduced risk of diarrhoeal disease outbreak Dignity and safety of girls, women, elderly and infirm enhanced
Provision of temporary toilets and hand-washing facilities	<ul style="list-style-type: none"> Build toilets and hand-washing facilities in temporary shelters for earthquake and/or monsoon affected population 	<ul style="list-style-type: none"> n hundred toilets and hand-washing facilities built 	

Resume CLTS programme	<ul style="list-style-type: none"> Follow-up activities to sustain ODF behaviours Refresher triggering Celebration of national sanitation week 	<ul style="list-style-type: none"> n hundred VDC declared ODF 	<ul style="list-style-type: none"> As above, and Restored sense of normality and business as usual
Restore partially damaged water systems	<ul style="list-style-type: none"> Incentivise communities to clean and repair minor damage to water systems through cash or materials support Provide technical supervision 	<ul style="list-style-type: none"> n hundred water systems restored to at least minimal service levels 	<ul style="list-style-type: none"> n thousand people have access to safe drinking water Reduced water collection time
Disaster preparedness	<ul style="list-style-type: none"> Develop user-friendly operational manual to address preparedness and response. Identify frequent landslide locations Pre-position emergency supplies Establish and train rapid response teams 	<ul style="list-style-type: none"> n districts prepared to respond to emergency water supply, sanitation and hygiene needs 	<ul style="list-style-type: none"> n thousands of people can potentially receive emergency water supply and sanitation
Restore governance capacity	<ul style="list-style-type: none"> Provide logistics support to DWSS, WSUC etc Capacity building on objectives and approaches to short term recovery 	<ul style="list-style-type: none"> n rented offices, vehicles, furnishings, tools, equipment, budget, etc. n watsan staff trained 	<ul style="list-style-type: none"> n water and sanitation institutions have capacity to deliver short-term recovery outputs
Develop build back better guidelines	<ul style="list-style-type: none"> Conduct a consultative review of options for build back better water and sanitation services. Advocacy and awareness on risk management and BBB 	<ul style="list-style-type: none"> Guidelines developed for medium-long term recovery 	<ul style="list-style-type: none"> Key sector actors ‘own’ build back better guidelines
Establish coordination and monitoring mechanisms	<ul style="list-style-type: none"> Undertake consultation with key sector and community actors Undertake consultation with other sectors e.g. housing, health 	<ul style="list-style-type: none"> Roles and responsibilities agreed Short-term recovery targets established Monitoring mechanism developed 	<ul style="list-style-type: none"> Key sector actors adopt results-based management approach
Develop detailed medium to long-term recovery plan	<ul style="list-style-type: none"> Undertake consultation with key sector actors Task team develops medium to long-term recovery plan 	<ul style="list-style-type: none"> Detailed medium to long-term recovery plan 	<ul style="list-style-type: none"> Key sector actors ‘own’ medium-long term recovery plan

Medium to long-term recovery activities will be implemented from early 2016 through to December 2018. These activities will place more emphasis on the principles of DRR and build back better. Activities will include the rehabilitation and construction of new water systems (for resettled communities), as well as to ensure compliance of municipalities to the “Urban Water Supply and Sanitation Policy 2009”. It will also include building-in resilience qualities, developing and implementing the water safety plans, resuming at-scale the Social Movement for Sanitation, implementing urban sludge management projects, building community and institutional capacity in DRM, strengthening governance especially among service providers, establishing guiding principles of equity in the development of services, strengthening sector monitoring, and completing the

planned sector reform processes that are embodied in the Sector Development Plan. The following table summarises the priority medium to long-term recovery activities.

Priority Needs	Recovery	Interventions	Expected Outputs	Intended Outcomes
Social Movement for Sanitation		<ul style="list-style-type: none"> Resume at-scale CLTS programme 	<ul style="list-style-type: none"> XX districts declared ODF 	<ul style="list-style-type: none"> n thousand people have access to basic sanitation and hand-washing facilities
Private sector sanitation services		<ul style="list-style-type: none"> Stimulate expansion of private sector sanitation service providers 	<ul style="list-style-type: none"> n private sector manufacturer/importer of sanitation products n licensed/registered service providers 	<ul style="list-style-type: none"> n thousand households have higher sanitation service level Affordable and quality products and services available
Urban sludge management		<ul style="list-style-type: none"> Implement faecal sludge management projects 	<ul style="list-style-type: none"> n medium-large towns have faecal sludge management services Waste water treatment facilities of KUKL rehabilitated and capacity increased 	<ul style="list-style-type: none"> Public health risks and environmental degradation mitigated
Water supply		<ul style="list-style-type: none"> Rehabilitate damaged water supply systems Construct new water systems with water conservation features 	<ul style="list-style-type: none"> n water systems that incorporate resilience qualities n water systems with improved water treatment capacity 	<ul style="list-style-type: none"> n resilient water systems delivering improved water quality
Water supply management		<ul style="list-style-type: none"> Develop water safety plans Train of WSUC and other service providers Register service providers 	<ul style="list-style-type: none"> n water safety plans n service providers trained in O&M, DRR, administration, etc. n service providers registered and certified 	<ul style="list-style-type: none"> n service providers with effective management capacity n service providers brought into regulatory system
Advocacy/Capacity building in DRM		<ul style="list-style-type: none"> Train WSUC and other service providers in DRM 	<ul style="list-style-type: none"> n service providers trained in DRM 	<ul style="list-style-type: none"> n service providers put in place DRM measures
Equity guidelines		<ul style="list-style-type: none"> Undertake consultation on enhancing equity in development and delivery of services Task team develop equity guidelines Revise sector monitoring protocol revised to incorporate equity indicators 	<ul style="list-style-type: none"> Equity guidelines developed Monitoring protocol revised to include equity indicators 	<ul style="list-style-type: none"> enhanced equity in access to water and sanitation services
Sector Development Plan		<ul style="list-style-type: none"> Prepare financing strategy Consult with key sector actors Improve Sector Governance – regulation, compliance to service standards, over extraction, waste water management 	<ul style="list-style-type: none"> Finalised Sector Development Plan 	<ul style="list-style-type: none"> Strengthened sector efficiency and effectiveness

Table on recovery and reconstruction initiatives and costs
(Based on Needs, DRM including BBB and recovery and reconstruction strategy)

District/ Buildings	Sanitation (NRs)	Water Systems (NRs)	Build Back Better (NRs)			Total Cost, NRs	Total Cost, USD	Budget allocation, USD		
			WSP/ Upgrading water quality	Infrastructure	Institutional capacity development			2015/16 (25%)	2016/17 (40%)	2017/18 (35%)
A. Severely affected districts (14 districts)										
Okhaldhunga	54,500,000.0	29,430,000.0	2,943,000.0	4,414,500.0	1,258,950.0	92,546,450.0	925,464.5	231,366.1	370,185.8	323,912.6
Ramechhap	136,250,000.0	931,489,475.0	93,148,947.5	139,723,421.3	16,016,092.1	1,316,627,935.9	13,166,279.4	3,291,569.8	5,266,511.7	4,608,197.8
Sindhuli	32,700,000.0	17,467,250.0	1,746,725.0	2,620,087.5	752,508.8	55,286,571.3	552,865.7	138,216.4	221,146.3	193,503.0
Kavre	141,700,000.0	344,870,039.0	34,487,003.9	51,730,505.9	7,298,550.6	580,086,099.3	5,800,861.0	1,450,215.2	2,320,344.4	2,030,301.3
Dolakha	114,450,000.0	1,095,678,900.0	109,567,890.0	164,351,835.0	18,151,933.5	1,502,200,558.5	15,022,005.6	3,755,501.4	6,008,802.2	5,257,702.0
Sindhupalchok	125,350,000.0	838,114,080.0	83,811,408.0	125,717,112.0	14,451,961.2	1,187,444,561.2	11,874,445.6	2,968,611.4	4,749,778.2	4,156,056.0
Kathmandu	68,277,600.0	67,852,500.0	6,785,250.0	10,177,875.0	2,041,951.5	155,135,176.5	1,551,351.8	387,837.9	620,540.7	542,973.1
Lalitpur	61,590,450.0	131,422,857.0	13,142,285.7	19,713,428.6	2,895,199.6	228,764,220.9	2,287,642.2	571,910.6	915,056.9	800,674.8
Bhaktapur	93,522,000.0	191,295,000.0	19,129,500.0	28,694,250.0	4,272,255.0	336,913,005.0	3,369,130.1	842,282.5	1,347,652.0	1,179,195.5
Rasuwa	38,150,000.0	65,400,000.0	6,540,000.0	9,810,000.0	1,553,250.0	121,453,250.0	1,214,532.5	303,633.1	485,813.0	425,086.4
Nuwakot	119,900,000.0	426,920,300.0	42,692,030.0	64,038,045.0	8,202,304.5	661,752,679.5	6,617,526.8	1,654,381.7	2,647,010.7	2,316,134.4
Dhading	26,781,300.0	588,835,817.0	58,883,581.7	88,325,372.6	9,234,256.8	772,060,328.0	7,720,603.3	1,930,150.8	3,088,241.3	2,702,211.1
Makwanpur	62,675,000.0	426,918,938.0	42,691,893.8	64,037,840.7	7,343,909.1	603,667,581.6	6,036,675.8	1,509,169.0	2,414,670.3	2,112,836.5
Gorkha	119,900,000.0	416,107,500.0	41,610,750.0	62,416,125.0	8,040,112.5	648,074,487.5	6,480,744.9	1,620,186.2	2,592,298.0	2,268,260.7
Sub-total of 14 districts	1,195,746,350 .0	5,571,802,656.0	557,180,265.6	835,770,398.4	101,513,235.1	8,262,012,905.1	82,620,129.1	20,655,032.3	33,048,051.6	28,917,045.2

B. Other moderately affected districts (17 districts)										
Dhankuta	41,001,440.0	155,652,000.0	15,565,200.0	23,347,800.0	2,949,801.6	238,516,241.6	2,385,162.4	596,290.6	954,065.0	834,806.8
Khotang	29,448,393.2	212,877,000.0	21,287,700.0	31,931,550.0	3,634,880.9	299,179,524.1	2,991,795.2	747,948.8	1,196,718.1	1,047,128.3
Solukhumbu	11,083,582.2	85,837,500.0	8,583,750.0	12,875,625.0	1,453,816.2	119,834,273.4	1,198,342.7	299,585.7	479,337.1	419,420.0
Tanahu	85,331,740.0	262,090,500.0	26,209,050.0	39,313,575.0	5,211,333.6	418,156,198.6	4,181,562.0	1,045,390.5	1,672,624.8	1,463,546.7
Baglung	67,015,380.0	199,143,000.0	19,914,300.0	29,871,450.0	3,992,375.7	319,936,505.7	3,199,365.1	799,841.3	1,279,746.0	1,119,777.8
Gulmi	63,767,309.9	230,044,500.0	23,004,450.0	34,506,675.0	4,407,177.1	355,730,112.1	3,557,301.1	889,325.3	1,422,920.4	1,245,055.4
Parwat	38,910,820.0	149,929,500.0	14,992,950.0	22,489,425.0	2,832,604.8	229,155,299.8	2,291,553.0	572,888.2	916,621.2	802,043.5
Palpa	46,701,028.2	254,079,000.0	25,407,900.0	38,111,850.0	4,511,700.4	368,811,478.6	3,688,114.8	922,028.7	1,475,245.9	1,290,840.2
Nawalparasi	63,437,476.8	62,947,500.0	6,294,750.0	9,442,125.0	1,895,774.7	144,017,626.5	1,440,176.3	360,044.1	576,070.5	504,061.7
Myagdi	30,222,430.0	76,681,500.0	7,668,150.0	11,502,225.0	1,603,559.0	127,677,864.0	1,276,778.6	319,194.7	510,711.5	446,872.5
Chitwan	72,128,025.0	43,491,000.0	4,349,100.0	6,523,650.0	1,734,285.4	128,226,060.4	1,282,260.6	320,565.2	512,904.2	448,791.2
Lamjung	45,832,320.0	135,051,000.0	13,505,100.0	20,257,650.0	2,713,249.8	217,359,319.8	2,173,593.2	543,398.3	869,437.3	760,757.6
Kaski	136,750,310.0	171,675,000.0	17,167,500.0	25,751,250.0	4,626,379.7	355,970,439.7	3,559,704.4	889,926.1	1,423,881.8	1,245,896.5
Syangja	73,927,244.4	252,934,500.0	25,293,450.0	37,940,175.0	4,902,926.2	394,998,295.6	3,949,983.0	987,495.7	1,579,993.2	1,382,494.0
Bhojpur	28,940,461.4	180,831,000.0	18,083,100.0	27,124,650.0	3,146,571.9	258,125,783.3	2,581,257.8	645,314.5	1,032,503.1	903,440.2
Sankhuwa Sabha	30,297,471.1	137,340,000.0	13,734,000.0	20,601,000.0	2,514,562.1	204,487,033.1	2,044,870.3	511,217.6	817,948.1	715,704.6
Arghakhanchi	51,040,340.0	211,732,500.0	21,173,250.0	31,759,875.0	3,941,592.6	319,647,557.6	3,196,475.6	799,118.9	1,278,590.2	1,118,766.5
Sub-Total for other 17 moderately affected districts	915,835,772.1	2,822,337,000.0	282,233,700.0	423,350,550.0	56,072,591.6	4,499,829,613.7	44,998,296.1	11,249,574.0	17,999,318.5	15,749,403.6
Total (A+B)	2,111,582,122.1	8,394,139,656.0	839,413,965.6	1,259,120,948.4	157,585,826.7	12,761,842,518.8	127,618,425.2	31,904,606.3	51,047,370.1	44,666,448.8

C. Recovery in Melamchi, NWSC, PID, STUEIP and STWSSP supported schemes(@4% total (A+B))		335,765,586.2				335,765,586.2	3,357,655.9	839,414.0	1,343,062.3	1,175,179.6
D. Meeting municipal standards for new urban population		5,008,586,000.0				5,008,586,000.0	50,085,860.0		20,034,344.0	30,051,516.0
Grand Total (A+B+C+D)	2,111,582,122.1	13,738,491,242.2	839,413,965.6	1,259,120,948.4	157,585,826.7	18,106,194,105.0	181,061,941.1	32,744,020.3	72,424,776.4	75,893,144.4

Implementation Strategy for recovery

The implementation of the recovery strategy should be through the existing sectoral policies and institutional arrangements, with coordination and strategic leadership provided by the MoUD. Although the recovery strategy is clearly focused on addressing the needs of the affected districts, this should not be at the cost of slowing the development of water and sanitation services in other parts of the country. Indeed the risk reduction and build back better principles should be incorporated into nationwide sector development. The continued progress towards a Sector Development Plan should be pursued, as this will facilitate a more effective and efficient delivery of the recovery strategy.

For an effective recovery, it is essential that roles and responsibilities, jurisdictions and resource envelopes are clearly established through consultation with key sector actors. This should set out the underlying principles of the recovery strategy, including the results-based management approach, monitoring and accountability. High-level technical and strategic guidance for the implementation should be developed at an early stage. Dedicated task teams should undertake this work under the coordination of the Sector Efficiency Improvement Unit (SEIU) under overall guidance and supervision of MoUD. The implementation mechanism should seek to further strengthen the decentralisation process and capacity building of local government institutions to ensure that interventions are sustainable. Similarly, the principle of decision-making at the lowest possible organization level is critical to sustainability, meaning that the consultation with communities and their involvement in monitoring must be viewed as an integral part of the implementation strategy. For example, reshaping / revising of ongoing or upcoming WASH projects in affected districts to incorporate rehabilitation, DRR and BBB components.

Sector assessment methodology

The sector assessment was led by DWSS with significant contribution from development partners. At a very early stage a comprehensive assessment format to record the extent of damage to the component parts of water systems and sanitation was developed and disseminated to district offices of DWSS. Through a combination of site visits, and information received from WSUCs and VDCs, assessment of individual water systems was undertaken. Standard costs were estimated for repair and reconstruction of both rural and urban systems, and sanitation facilities. Information was collated for each district and transferred to central level to produce an overall summary of damage to assets and the costs of repair or reconstruction.

To supplement the DWSS assessment, a validation exercise was organised for the purposes of collecting qualitative information about the impacts on the affected population as a consequence of disruption to water supply and sanitation services, and also for quality assurance. Field missions were undertaken in nine districts. Site visits were made to visually inspect water systems and sanitation facilities, consultation took place with community members and focus group discussions with women were held to better understand the gender dimensions of the disaster. Stakeholder meetings took place at district headquarters and with DWSS and other water and sanitation actors to discuss views on DRR and approaches and needs to achieve the build back better aims.