

Government of Nepal

Department of Local Infrastructure Development and  
Agricultural Roads

# Flood Damage Report 2008

DRAFT REPORT



October 31<sup>st</sup> 2008

FRISA ITECO Joint Venture

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## Background

Nepal is a semi-tropical country with a monsoon that lasts from June to September each year. The geography of Nepal is not appropriate for heavy rainfall, with relatively young and unstable mountainous areas and a fragile geology. Landslides are common and often block main transportation routes. Rural infrastructure is particularly vulnerable during the monsoon period; the majority of rural roads are not metalled and it is difficult to maintain and repair remote infrastructure. Some structures such as Koshi Barrage can actually have a negative effect by increasing the risk of flood.

Nepal is divided into 75 administrative districts. In terms of development work each district has a District Development Committee (DDC) which takes decisions on development issues. Within each district there are villages, which are administered by Village Development Committees (VDCs).

Nepal has suffered two major flooding events this monsoon. Firstly there was a serious flood in the east of the country in August, in Sunsari district, where the Saptakoshi River burst its banks and altered course, leaving vast tracts of Nepal and India under water. Only 20% of the river is flowing in the main channel, with the river now following the course it last made in 1920. It has been estimated that over 50,000 people were displaced and many have not yet been able to return to their homes, with little prospect of this happening until the river can be re-routed to its original course. There was also significant loss of agriculture, livestock, fish farms, etc.



The second event happened in September and affected large areas of the Far West of Nepal. Two to three days of consistently heavy rain led to floods and landslides, causing at least 40 reported deaths, displacing over 10,000 people and seriously damaging transport and other infrastructure.

Within the Government of Nepal (GoN), the Ministry of Local Development is responsible for the maintenance and upkeep of rural infrastructure, in association with DDCs and VDCs. The Department of Local Infrastructure Development and Agricultural Roads (DoLIDAR) has this responsibility and has prepared this report.

The GoN immediately mobilised emergency relief for the affected persons in both areas, with assistance from various donor agencies. Thousands of stranded people were rescued by boat, helicopter and even elephant. However, as the flood waters recede the extent of damage to local infrastructure is becoming apparent. The government has therefore prepared this report for assistance in repairing and rehabilitating roads, water supply, irrigation schemes and buildings that were affected by the floods.

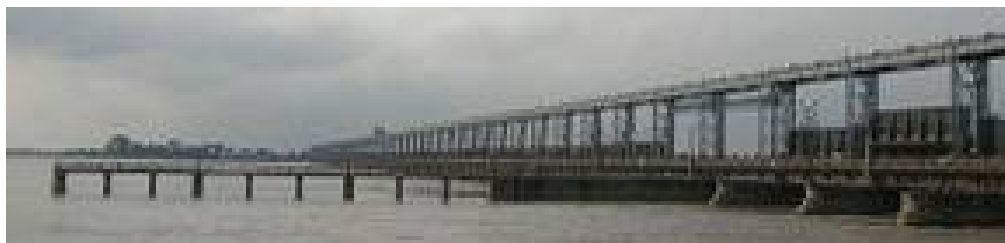
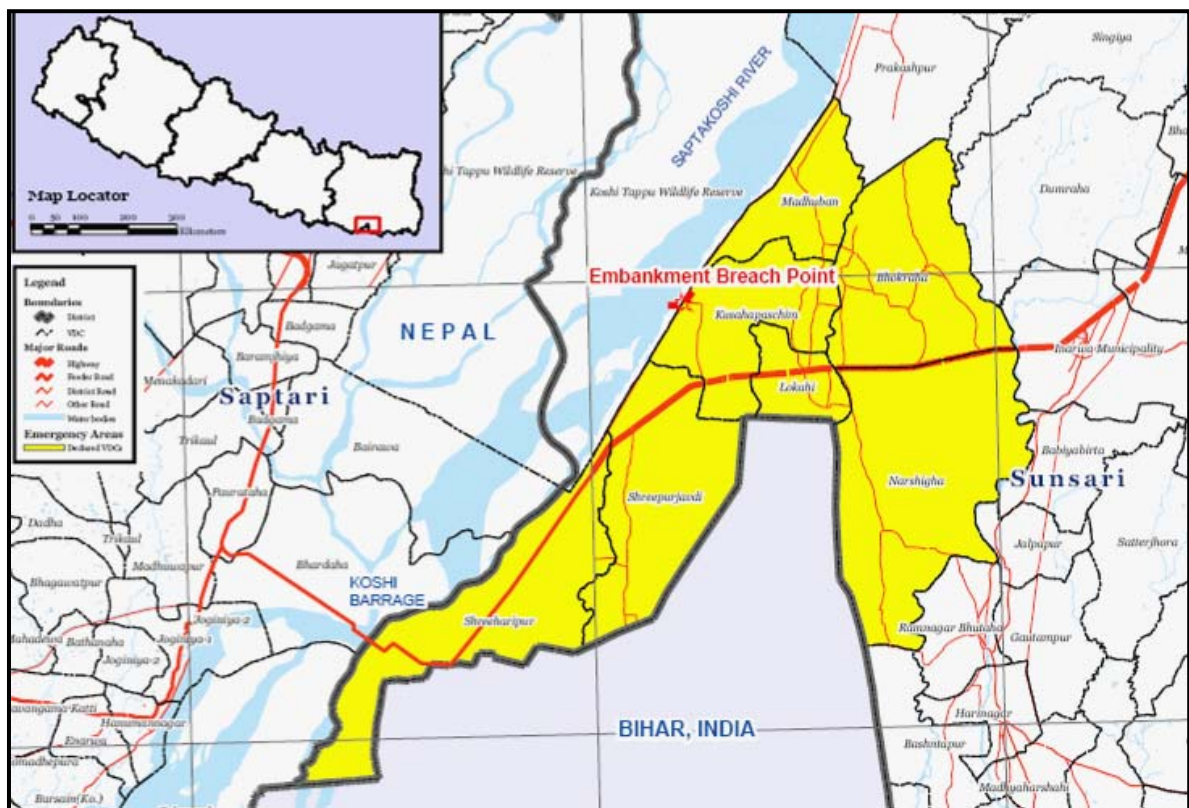
## Flood Affected Area

### Eastern Region

The Koshi Barrage breach affected a large area to the east of the Saptakoshi river, as can be seen in Map 1 below. A 500m section of one embankment was washed away and the VDCs of Kushasha, Haripur, Sripur and Laukahi were inundated. These VDCs are in the district of Sunsari, a mainly Terai district with over 1,000km of rural roads in total. It has been estimated that some 5,000 homes were submerged and a 10km stretch of the East-West Highway, the main arterial road from East to West of Nepal, was completely washed away. There have also been significant impacts in India as the Saptakoshi river has essentially altered its course.

Map 1 – Saptakoshi river – embankment collapse

(Source – OCHA Nepal website)



*The Koshi Barrage*

The East – West Highway is the only road connecting central and eastern Nepal. At present the only way to travel between the two is via India, which takes two to three days.

## Far Western Region

The Far Western floods affected many districts, but the most severely affected were Dadeldhura, Doti, Kanchanpur and Kailali. Dadeldhura and Doti are mainly hilly districts and were therefore more affected by landslides, whereas Kanchanpur and Kailali are mainly Terai districts and as such bore the brunt of the flooding as the rainwater flowed from the hills to the Terai. This is illustrated on Map 2.

Map 2 – Far Western districts affected by flood and landslide  
(Source – OCHA Nepal website)



*Damaged road in the Far West of Nepal*

## Extent and duration of 2008 flood

The events leading to the two floods were quite different. The Sunkoshi flood was caused by a breach of the embankment that retains the Saptakoshi river on 18<sup>th</sup> August 2008, upstream of the Koshi Barrage. Rainfall for the season had actually been less than normal, but the failure of the embankment has been blamed on lack of timely maintenance and a gradual silting of the main river.

In contrast the floods in the far west of Nepal were due to two days of intense rainfall. As can be seen in Table 1 below, the rainfall in Dadeldhura, Dipayal (Doti) and Dhangadi (Kailali) was very heavy on 20<sup>th</sup> September, with more rain falling in 24 hours than normally falls in the whole month of September (average approx. 200mm).

Table 1 - Rainfall statistics for 20<sup>th</sup> September 2008  
(source: GoN meteorological department website)

Stations	Max. temp. (°C)	Min. temp. (°C)	24 hrs Rainfall (mm)#
Dadeldhura	14.8	11.5	<b>182.9</b>
Dipayal	20.4	19.8	<b>172.9</b>
Dhangadi	24.5	22.0	<b>345.8</b>
Birendranagar	23.6	20.2	91.6
Nepalgunj	31.0	23.6	79.1
Jumla	16.3	10.8	93.6
Dang	29.4	21.3	78.2
Pokhara	27.1	17.6	103.9
Bhairahawa	34.2	25.3	7.6
Simra	32.5	26.4	22.9
Kathmandu	26.9	19.2	1.0
Okhaldhunga	24.5	16.7	6.6
Taplejung	24.6	17.9	0.1
Dhankuta	28.4	19.6	Trace
Biratnagar	34.3	26.0	0.0
Nagarkot	20.5	14.5	Trace*
Jiri	24.0	13.6	0.0*
Jomsom	20.2	8.3	57.3*
Dharan	33.0	23.9	2.5*



*Inundated village in the Far West*

## **Damage Assessment**

This flood damage assessment was initiated by the Government of Nepal and will be followed with a joint assessment by Donor Partners. For the assessment, the key issues being considered are mainly the sectors and geographical coverage to be included. It is expected that a Joint Needs Assessment will ultimately lead to the development of a rehabilitation project.

### ***Scope of Assessment***

This assessment is intended to cover the sectors under the responsibility of DoLIDAR. The affected DDCs were asked to assess the following types of infrastructure for damage as a result of the flood events mentioned before:

- Roads – this includes rural roads, which are almost exclusively earth or gravel standard, and any associated motorable or trail bridges.
- Water Supply – this includes mainly public or community water supply systems, including sanitation if any.
- Irrigation – this includes all types of irrigation schemes that are used for community irrigation of agricultural land.
- Buildings – this includes and public buildings, such as schools, health posts, district or village administration buildings, etc.

For the purposes of assessment, flood damage was defined as:

- Roads – Damage to road surface or structure, drainage structures and bridges (including approaches) that was caused by excessive rainfall or water flow.
- Water supply – Damage to water supply infrastructure; including pipes, collection ponds, taps and other associated structures, caused by floods or landslides.
- Irrigation – Damage to irrigation structures, channels or pipes as a result of excessive water flow or landslides.
- Buildings – Damage to building structures due to flooding or landslides.

### ***Assessment methodology***

The information on damaged infrastructure and the estimates for repair and rehabilitation were collected mainly by DDC technical staff during the months of September and October 2008. The staff visited as many of the affected sites as they could and compiled information first hand. The completed reports were then handed to DoLIDAR for assessment and compilation.

The summary of damages and repair estimates can be seen in tables 2 and 3, whilst a full estimate is available in Annex 1.

The overall assessment process will adopt the methodology developed by the United Nations Economic Commission for the Latin America and the Caribbean (ECLAC). The methodology includes the following basic concepts and objectives:

- The procedures are standardised in such a way that it as a whole is a tool for the socio-economic and environmental assessment of the disaster;
- A multi-sectoral and multidisciplinary damage evaluation and qualification method for disaster affected sectors is followed;
- There exist standard sectoral procedures for comparability of results;
- The assessment can be considered as an instrument for the decision making process and for project formulation;
- It does not address a study of the origins of the disaster;
- The focus is not on the actions undertaken during the emergency phase of the natural disaster;

The ultimate goal of following the aforementioned methodology is to measure, in monetary terms, the impact of disasters on the society, economy and environment of the affected areas. The estimates for the assessment in this methodology are undertaken at three levels as direct damage, indirect losses and secondary effects. As an estimate, direct and indirect damage will be valued and/or recorded in local currency and export products or imported goods will be expressed in foreign currency.



*Damaged culverts and bridges in the Far West*

## Rehabilitation cost estimate

In this preliminary stage, the information on damaged infrastructure and the estimates for repair and rehabilitation were collected mainly by staff of DDC technical wing, the District Technical Office. The Districts that were most severely affected by the floods have all sent estimates for the repair of local infrastructure to DoLIDAR. The type of infrastructure that needs repair or rehabilitation includes rural roads, bridges, irrigation systems, water supply and buildings.

The districts included are:

Eastern Region:

- Sunsari

Far Western Region:

- Dadeldhura
- Doti
- Kanchanpur
- Kailali

The table below shows a summary of the districts affected and the damage sustained:

Table 2 – Number of infrastructure damages

Infrastructure	Districts					Total
	Sunsari	Dadeldhura	Doti	Kanchanpur	Kailali	
Roads	14	17	4	7	33	<b>75</b>
Water Supply		22	17		4	<b>43</b>
Irrigation		24	40	4	4	<b>72</b>
Buildings	2	28		1		<b>31</b>
<b>Total</b>	<b>16</b>	<b>91</b>	<b>61</b>	<b>12</b>	<b>41</b>	<b>221</b>

Table 3 – Summary of estimate to repair damages (in '000 Rs)

Infrastructure	Districts					Total
	Sunsari	Dadeldhura	Doti	Kanchanpur	Kailali	
Roads	24,200	51,350	8,744	79,950	51,350	<b>215,594</b>
Water Supply		15,510	3,692			<b>19,202</b>
Irrigation		3,765	24,555	420,450		<b>448,770</b>
Buildings	2,000		6,096	23,079		<b>31,175</b>
<b>Total</b>	<b>26,200</b>	<b>70,625</b>	<b>43,087</b>	<b>523,479</b>	<b>51,350</b>	<b>714,741</b>

## **Conclusions**

The damage caused by floods is multi-sectoral and multi-dimensional. The flood damage assessment will identify the most severely affected sectors, geographical locations and vulnerable people and will be conducted in such a way that the output gives a synopsis in three parts with a description, assessment and proposed rehabilitation/reconstruction. The description mainly summarises the disaster, identifies affected people, gives locations and updates the situation. The assessment part summarises the magnitude of the disaster and identifies the requirements of the proposed project. The last part details what is to be rehabilitated and what needs to be done for reconstruction.

The assessment as carried out by district staff has confirmed that there was significant damage to local infrastructure as a direct result of the two flood events in August and September 2008. Rural roads have been seriously affected by the floods with many being left impassable and many bridges and drainage structures have been destroyed. Irrigation schemes have also been badly damaged, with many farmers relying on such systems for their crops each year. The destruction of irrigation schemes will have a longer term impact on already food deficient areas if immediate action is not taken.

Water supply schemes and buildings have also been affected, although to a lesser extent than roads and irrigation. Although the district teams have mobilised effectively to assess the damages, it can be assumed that there are further damages that will become apparent once flood waters completely recede, especially in the Sunsari area. Although it is beyond the scope of this report, it is clear that significant damage has also been caused to agriculture and other farming activities, which will also have an effect on the local economy.

## **Recommendations**

The following recommendations have been made as a result of this assessment:

- Funding should be secured to undertake the repairs and rehabilitation outlined in this report.
- DoLIDAR should set priorities for repair and rehabilitation work, based upon the funding that is made available.
- More detailed estimates should be made for all prioritised work to be undertaken, to be done by the District Technical Offices (DTO) with necessary support from DoLIDAR.
- GoN is at present assessing the Koshi Barrage situation with India. Although this is beyond the scope of this report, there may be some recommendations to be implemented by DoLIDAR.
- DoLIDAR should investigate additional measures that could be taken to avoid or mitigate similar disasters in the future.

Based on the preliminary information collected by DoLIDAR a rapid field visit will be conducted by a group of professionals from DoLIDAR and Donor Partners in the affected area to get a first hand impression of the damage caused by the disaster. Then the preliminary information will be further assessed and verified. During this period, a needs assessment will also be conducted so that facts and figures related to the field situation can be forwarded for formulation of a rehabilitation project.



*Temporary camps until flood waters recede*

# Annex 1

## Detailed Cost Estimate of Flood Damages

**Estimated Cost of Flood Damaged Infrastructure**

	Districts					Rs. 000	Total
	Dadeldhura	Sunsari	Kailali	Doti	Kanchanpur		
<b>Road</b>	51350	24200	51350	8743.84	79950	215593.84	
<b>Water Supply</b>	15510			3692		19202	
<b>Irrigation</b>	3765			24555	420450	448770	
<b>Buildings</b>		2000		6095.89	23079	31174.89	
<b>Total</b>	<b>70625</b>	<b>26200</b>	<b>51350</b>	<b>43086.73</b>	<b>523479</b>	<b>714740.73</b>	

**Quantity Infrastructure, Damaged by Flood in 5 Districts**

	Districts					Total
	Dadeldhura	Sunsari	Kailali	Doti	Kanchanpur	
<b>Road</b>	17	14	33	4	7	75
<b>Water Supply</b>	22		4	17		43
<b>Irrigation</b>	24		4	40	4	72
<b>Buildings</b>	28	2			1	31
<b>Total</b>	<b>91</b>	<b>16</b>	<b>41</b>	<b>61</b>	<b>12</b>	<b>221</b>

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Assessment of Damage Infrastructure 2008 Flood

**Rural/Agri Road/Trail Bridge  
Dadeldhura District**

Nrs. In Thousands (,000)

	Discription	Paved Road (KM)			Gravelled Road (KM)			Earthen Road (KM)			Bridge/Culvert (M)			Total Damage	Remarks
		Full	Part	Nrs.	Full	Part	Nrs.	Full	Part	Nrs.	Full	Part	Nrs.		
1	Budar Jogbuda							6		3000		10	2000	5000	
2	Bagbazar Bagarkot							5		2500		6	1200	3700	
3	Jogbuda Sirsa Parigaun							4.8		2450		4	1300	3750	
4	Ugratara Belapur							5.25		2650		5	1250	3900	
5	Aaita Ghatal							2.5		1050		3	450	1500	
6	Ugratara Bhaliya Ajayameru							3		1160		5	600	1760	
7	Bhatkada Rail							6		2600		10	1300	3900	
8	Sakayal Kailapalmandu							5		2520		8	1250	3770	
9	Ranidhara jilla Aspatal							2		800				800	
10	Bagbazar Vel							2.5		700				700	
11	Puntura Trail Bridge												3700		
12	Jogbudha Salon Trail Bridge												2500		
13	Chamagad Trail Bridge												1950		
14	Totmara Trail Bridge												1455		
15	Kalaraha Trail Bridge Alital												1566		
16	Sabjala Trail Bridge												1588		
17	Kauchadi Dhakani Trail Bridge												1375		
	<b>Total</b>							<b>42.1</b>		<b>19430</b>			<b>23484</b>	<b>42914</b>	
	<b>Sunsari District</b>														
1	Haripur-Sripur Kumahi Road				12					9000				9000	
2	Shiva chowk-India Boarder				5					4400			600	5000	
3	Kushaha-Madhuban Road				4					1200				1200	
4	Haripur-India Boarder				3					500				500	
5	Sripur- India Boarder				6					800				800	
6	Sripur- Thanparti Tole				5					700				700	
7	Kushaha- Koshi Tappu Wildlife Conservation				3					500				500	
8	Haripur-India Boarder				2.5					500				500	
9	Haripur-Kerabari-Kherbar Road				4					800				800	
10	Kushaha-India Boarder Road				7					1200				1200	

	Discription	Paved Road (KM)			Gravelled Road (KM)			Earthen Road (KM)			Bridge/Culvert (M)			Total Damage	Remarks
		Full	Part	Nrs.	Full	Part	Nrs.	Full	Part	Nrs.	Full	Part	Nrs.		
11	Kushaha-Jamuna-Koshi Tappu Wildlife Conservation				5		700							700	
12	Laukahi chowk-Madhuban-Koshi MaVi				6		800							800	
13	Jalpapur - Bhutaha Bandh Road Sector					0.5	1500							1500	
14	Bhutaha - Harinagar Road Sector					0.3	1000							1000	
	<b>Total</b>				<b>62.5</b>		<b>23600</b>				<b>0</b>			<b>24200</b>	
	<b>Kailali District</b>														
1	Chisapani Solta Road	20						20	20	4000	1000	1000	2000	6000	
2	Pahalmanpur-Aambasa Lalbojhi road	30			13	13	1500	17	17	5000	18	18	4000	10500	
3	sukhad-Bhajani	24			24	24	1000				21	21	7000	8000	
4	Gulara-Narayanpur	24			24	24	350				600	600	250	600	
5	Chuha-Sutaiya-Marighat	32			16	16	150	16	16	200	300	300	100	450	
6	Sadakpur-Ujelinera-Loharpur	12						12	12	200	1000	1000	200	400	
7	Udasipur culvert										10	10	100	100	
8	Malakheti-Badarelal	12			12	12	150							150	
9	Sahajpur-Nigali	90						13	13	200				200	
10	Rajipur-Baluwadanda	40			30	30	300				2000	2000	300	600	
11	Dhangadi-Bedaha	12			7	7	500	5	5	600				1100	
12	Bandehada-Dhurjana Road	8			8	8	500							500	
13	Harinagar-Karaiya-Bhagatpur	9			4	4	500	5	5	1000	500	500	200	1700	
14	Rampur-Belubagale	8			8	8	600							600	
15	Sadakpur-Bauniya-Tallapani	15			6	6	500	9	9	1000				1500	
16	Muda-Tulsipur	5			5	5	500							500	
17	Jagatpur-Tikapur Road	8			4	4	400	4	4	600				1000	
18	Durgauli-Munuwa	5			5	5	500							500	
19	Beluwa-Satti	5			5	5	500							500	
20	Batiya-Kharaula-Bakabani	7			7	7	700							700	
21	Gobraila-Parewa-Ratnapur	5			1	1	200	4	4	600				800	
22	Badhaipur-Baluwagada	15			7	7	700	8	8	1000				1700	
23	Chaumala-Khairala	30			2	2	200	28	28	1000				1200	
24	Sadepani-Sirabagar										3	3	800	800	
25	Masuriya4-Basta Nala										10	10	2500	2500	
26	Sadepani-Nimdai	5			5	5	100				3	3	500	600	
27	Pahalmanpur 2- Ghumni Bhakal	2						2	2	500				500	
28	Malakheti3-1 Culvert										3	3	500	500	
29	Dodhara 7- Kattipur										300	300	500	500	

	Discription	Paved Road (KM)			Gravelled Road (KM)			Earthen Road (KM)			Bridge/Culvert (M)			Total Damage	Remarks
		Full	Part	Nrs.	Full	Part	Nrs.	Full	Part	Nrs.	Full	Part	Nrs.		
30	Bauniya-Joshipur-Bhajani	24			24	24	2000							2000	
31	Masuriya-Hasuliya	19			19		1500							1500	
32	Dudejhari-Tikapur	12			12	12	150						3000	3150	
33	Ranishikharjhal7 Bridge													0	
	<b>Total</b>	<b>478</b>	<b>0</b>	<b>0</b>	<b>248</b>	<b>229</b>	<b>13500</b>	<b>143</b>	<b>143</b>	<b>15900</b>	<b>5768</b>	<b>5768</b>	<b>21950</b>	<b>51350</b>	
	<b>Doti District</b>														
1	Dipayal-Daud-Patihalne Rural Road													6210.75	
2	Rajapur-Tikhatar-Chabara-Chautara Rural Road													2433.09	
3	Kapalleki-Bhumirajmandau Road													200	
4	Chiradi gad Wooden Bridge												100		
	<b>Total</b>												<b>100</b>	<b>6510.75</b>	
	<b>Kanchanpur District</b>														
1	Roads of Different VDCs				200		40000		5	2750					
2	Black Topped Roads		0.2	2000											
3	Suspension Bridge										2		20000		
4	Protection of Bridge											2	5500		
5	RCC Slab Culverts											6	2400		
6	Hume Pipe Culverts											77	6000		
7	Wooden Bridge										26		1300		
	<b>Total</b>		<b>0.2</b>	<b>2000</b>	<b>200</b>		<b>40000</b>		<b>5</b>	<b>2750</b>	<b>28</b>	<b>85</b>	<b>35200</b>	<b>79950</b>	
	<b>Grand Total of All Districts</b>													<b>204925</b>	

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**Rural Water Supply**

**Dadeldhura District**

Nrs. In Thousands (,000)

SN	Discription	Impact on the Macroeconomy	Amount Nrs	Remarks
1	Chaudha W/S Project		800	
2	Koral W/S Project		600	
3	Baidha Koteli W/S Project		900	
4	Chipur Pasela W/S Project		950	
5	Vittesal W/S Project		800	
6	Bhanshaydi KholaW/S Project		750	
7	Wallohantad W/S Project 5		450	
8	Dharapani W/S Project		700	
9	Okhaldhunga W/S Project Alital		575	
10	Kurjaini W/S Project Alital		722	
11	Watthad W/S Project Alital		435	
12	Dhaimara W/S Project		515	
13	Baskota W/S Project		654	
14	Dharapani W/S Project		700	
15	Pokhara W/S Project W.No. 6 Meddi		614	
16	Odigaun W/S Project Dewal		800	
17	Thagur Gaun W/S Project chipur		658	
18	Litargaun W/S Project A.Na. Pa. 10		830	
19	Majpani W/S Project jogbudha		784	
20	Laldhunga W/S Project		641	
21	Puntura W/S Project		850	
22	Kurmulle W/S Project		782	
<b>Total</b>			<b>15510</b>	
<b>Kailali District</b>				
1	WS Projects of Nigali VDC			
2	WS Projects of Sahajpur VDC			
3	Kheraila 7, Himjire Simali WS Project			
4	Mohonyal VDC WS Project			
<b>Doti District</b>				
1	Padagau ws Project		100	
2	Khachada WS Intek		60	
3	Gauradigau WS Project		400	
4	Paladi WS Project Tanki		80	
5	Nabadev MaVi WS Intek		30	
6	Janapriya NiMavi WS		100	
7	Laxminagar VDC WS Projects		1000	
8	Bachhain VDC WS Pipeline& Intek		100	
9	Nirauli VDC WS Project		500	
10	Nirauli VDC WS Project Intek&pipeline		250	
11	Gabar Pipaldadi WS Intek&Pipe		90	
12	Patalgau WS Project		12	
13	Joraghat WS Project		50	
14	Sitaram School, Latamandau School and Jijomandau VDC WS		200	
15	Mallisat Tolagada WS Project		400	
16	Bhairab School WS Project		120	
17	Gajari VDC's WS Project		200	
<b>Total</b>			<b>3692</b>	
<b>Grand Total of All Districts</b>			<b>19202</b>	

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Irrigation/Kulo

**Dadeldhura District**

Nrs. In Thousands (,000)

	Discription	Impact on the Macroeconomy	Amount N	Remarks
1	Siddhanath MaVi Chandani, Jogbudha	Damaged by Flood	110	
2	Silma Gaira Irrigation channel, Kailapalmandu	Damaged by Flood	35	
3	Mallokhet Irrigation Channel, Sakayal	Damaged by Flood	40	
4	Simkhet Irrigation Channel, Kapadi	Damaged by Flood	20	
5	Rithisen Irrigation Channel, Kapadi	Damaged by Flood	15	
6	Pilla Irrigation Channel, Ganeda	Damaged by Flood	15	
7	Dobhaiya Sera Irrigation Channel, Kailapalmandu	Damaged by Flood	90	
8	Mauri Irrigation Channel, Alital	Damaged by Flood	150	
9	Betan Irrigation Channel, Alital	Damaged by Flood	175	
10	Airani Irrigation Channel, Alital	Damaged by Flood	100	
11	godam Irrigation Channel, Alital	Damaged by Flood	250	
12	Khelchaud Irrigation Channel, Alital	Damaged by Flood	125	
13	Dadeli Irrigation Channel,	Damaged by Flood	150	
14	Kalakot Irrigation Channel, Alital	Damaged by Flood	225	
15	Kalaban Irrigation Channel, Alital	Damaged by Flood	150	
16	Patar Irrigation Channel, Alital	Damaged by Flood	175	
17	Aairad Irrigation Channel, Aalital	Damaged by Flood	170	
18	Jajola Irrigation Channel, Alital	Damaged by Flood	260	
19	Kafal Gaira Irrigation Channel, Jogbudha	Damaged by Flood	275	
20	Sallaghari Kurmula Irrigation Channel, Jogbudha	Damaged by Flood	200	
21	Ghumtigada Irrigatiion Channel, Jogbudha	Damaged by Flood	125	
22	Dhanuke Kareni Irrigation Channel, Jogbudha	Damaged by Flood	220	
23	Motahaldu Irrigation Channel, Jogbudha	Damaged by Flood	240	
24	Jogbudha Irrigation Channel, Jogbudha	Damaged by Flood	450	
	Total		<b>3765</b>	
	<b>Kailali District</b>			
1	Salle Irregation, Kheraila-7			
2	Sripur 3,4, Khutiya Kalikhola Irrigation			
3	Pahalmanpur-5, Bhadeli Irrigation			
4	Janakinagar, Munuwa, Padharaiya Roda Kulo			
	<b>Doti District</b>			
1	Chankatte Irrigation		250	
2	Saraswatinagar Irrigation/Dam Maintenance		400	
3	Ranagau Badkhet Irrigation program		250	
4	Kadamandau Dovar Irrigation program		200	
5	Deura& Khara Khola Irrigation Program		450	
6	Sadisera Irrigation Kulo		100	
7	Chindigad Irrigation Kulo		600	
8	Sim Khet Irrigation Kulo		600	
9	Mudegau Irrigation Maintenance		200	
10	Basudebi Irrigation Pokhari		100	
11	Basudebi Irrigation Kulo		90	
12	Chadakot Irrigation Kulo		80	
13	Matela Irrigation Kulo		85	
14	Rujhegada Irrigation Kulo		90	
15	Basudevi 8, Irrigation Pokhari		120	
16	Mannakapadi Irrigation Kulo		5000	
17	Dharmasain Irrigation Kulo		200	

Nrs. In Thousands (,000)

	Discription	Impact on the Macroeconomy	Amount N	Remarks
18	Gaguda Irrigation Kulo		300	
19	Wadakheth Irrigation Kulo		120	
20	Seralakheth Irrigatiion Kulo		110	
21	Seraligad-Salan Irrigation Kulo		100	
22	Latamandau Irrigation Kulo		300	
23	Simatoli Irrigation Kulo		160	
24	Lamkatte Irrigation Kulo		180	
25	Dirghamandau Irrigation kulo		500	
26	Dhupari Irrigation Kulo		150	
27	Gharkhet Jogeni Irrigation Kulo		300	
28	Laxminagar Irrigation KULO		1000	
29	Karnasi River Tadband (Dam)		4000	
30	Ghadilas Irrigation Project		150	
31	Irrigation Nahar Ghodilas,		4000	
32	Chimche Thalapani Irrigation Nahar		1700	
33	Bachhain Irrigation Kulo		150	
34	Nirauli Irrigation Kulo		300	
35	Jadikheth Tadabandan		120	
36	Ghangal Irrigation Kulo		1220	
37	Khuckhutta 2, Irrigation		80	
38	Seti bagar Bazar Banedugrisain Tatabandhan		40	
39	Kotekheth Irrigation Kulo		510	
40	Lamadwala Irrigation Kulo		250	
	<b>Total</b>		<b>24555</b>	
	<b>Kanchanpur District</b>			
1	Irrigation Canal Maintenance		280000	
2	Hand Pumps		7300	
3	Boring of Irrigation		68500	
4	River Training Works		64650	
			<b>420450</b>	
	<b>Grand Total of All Districts</b>		<b>448770</b>	

Government of Nepal  
Ministry Of Local Development  
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Assessment of Damage Infrastructure 2008 Flood

**Doti District**

Buildings

Nrs. In Thousands (,000)

	Discription	Impact on the Macroeconomy	Amount Nrs.	Remarks
1	Ranagau VDC Building		300	
2	Malika Primary School		400	
3	Deukala Primary School, Khatiwada		100	
4	Additional Post Office		250	
5	Saunak Primary School, Ghanteshwor		600	
6	GHanteshwor School		80	
7	Gaurisankar Secondary School		120	
8	Kaphelashwor Primary School		100	
9	Bhageshwor Kapadeuti Salmuni		150	
10	Sitaram Primary School		30	
11	Masteshwor Primary School		130	
12	Ghantekulo		150	
13	Chhetreshwor Lower Secondary School		300	
14	Bhubaneshwori Primary School		130	
15	Shivaji Secondary Bhujyali Building		350	
16	Bhawani Lower Secondary School		400	
17	Masteshwor Secondary		100	
18	Dumrakot Primary Buildng		90	
19	Obadeu Primary School		655.89	
20	Small Hidropower Gadsera		50	
21	Kailpal Child Care Center		50	
22	Duna Primary School		300	
23	Aadarsha Primary School		65	
24	Chhatiban 9, Rupsakada Jlasewa Primary School		75	
25	Bhagawati Primary School, Toilet		50	
26	Bhairab Primary School		120	
27	Saligad Micro Hidro Power		800	
28	Kalika Balbikas center		150	
<b>Total</b>			<b>6095.89</b>	
<b>Sunsari District</b>				
1	Haripur VDC Building		1000	
2	Sripur Jabdi VDC Building		1000	
<b>Total</b>			<b>2000</b>	
<b>Kanchanpur District</b>				
School Building			<b>23079</b>	
<b>Total</b>			<b>23079</b>	
<b>Grand Total of All Districts</b>			<b>31174.89</b>	