

HYDROLOGY PROJECT PHASE- II PUNJAB STATE- DETAILED COST

ITEM	Unit	Quantities							Base Cost - Negotiation (Rs '000)							Totals Including Contingencies (Rs '000)						
		2005	2006	2007	2008	2009	2010	Total	2005	2006	2007	2008	2009	2010	Total	2005	2006	2007	2008	2009	2010	Total
I. Investment Costs																						
A. COMPONENT I: Institutional Strengthening																						
1. I.B. Awareness, Dissemination and Knowledge Sharing																						
a. Strategy and capacity building																						
HIN analysis & Benefits identification, monitoring and assessment /a	ls	0.5	1	1	1	1	0.5	5	256	512	512	512	512	256	2,559	267	559	586	613	642	336	3,003
b. Awareness raising and data dissemination																						
Creation of resource material for different media /b	ls/year	-	1	1	1	1	1	5	-	368	368	368	368	368	1,842	-	403	422	441	462	484	2,212
Publication - Regular and Specific	ls/year	-	1	1	1	1	1	5	-	204	204	204	204	204	1,019	-	239	250	262	274	287	1,312
Website development and maintenance	ls/year	-	1	1	1	1	1	5	-	205	205	205	205	205	1,024	-	224	234	245	257	269	1,229
Workshops, seminars, exhibition, bradcasting /c	ls/year	0.2	1	1	1.2	1.3	1.3	6	205	1,023	1,023	1,227	1,330	1,330	6,137	220	1,150	1,203	1,512	1,715	1,796	7,596
Training equipment /d	ls/year	-	1	-	-	-	-	1	-	713	-	-	-	-	713	-	832	-	-	-	-	832
Subtotal Awareness raising and data dissemination																						
c. Knowledge/experience sharing and inter-agency collaboration																						
Workshops and study tours (local/national) /e	ls/year	1	1	1	1	1	1	6	511	511	511	511	511	511	3,068	549	575	602	630	660	691	3,706
International training and study tours	ls/year	-	1	1	2	1	1	6	-	505	505	1,009	505	505	3,027	-	555	579	1,216	637	666	3,653
Subtotal Knowledge/experience sharing and inter-agency collaboration																						
Subtotal I.B. Awareness, Dissemination and Knowledge Sharing																						
2. I.C. Implementation support																						
a. Management and monitoring support for IAs and PCS																						
Short-term consultancy	pers/month	-	0.5	1	0.5	0.5	0.5	3	-	92	184	92	92	92	553	-	101	211	110	116	121	658
Training & workshops for organizational development /f	ls/year	0.25	1	1.25	1.5	1	1	6	60	239	299	359	239	239	1,436	64	269	352	442	309	323	1,759
Subtotal Management and monitoring support for IAs and PCS																						
b. Technical consultancy (short term)	pers/month	-	0.5	0.5	1	0.5	0.5	3	-	91	91	182	91	91	547	-	98	102	214	112	118	644
c. Logistical support																						
Sectional offices	no	-	10	10	-	-	-	20	-	3,582	3,582	-	-	-	7,165	-	4,223	4,421	-	-	-	8,644
Car	no	3	-	-	-	-	-	3	1,228	-	-	-	-	-	1,228	1,383	-	-	-	-	-	1,383
Gypsy	no	7	8	-	-	-	-	15	2,866	3,275	-	-	-	-	6,141	3,226	3,861	-	-	-	-	7,087
Wagon and van	no	-	4	-	-	-	-	4	-	2,866	-	-	-	-	2,866	-	3,378	-	-	-	-	3,378
Trucks/Tractor	no	-	4	-	-	-	-	4	-	3,275	-	-	-	-	3,275	-	3,861	-	-	-	-	3,861
Computer package	no	-	2	-	-	-	-	2	-	1,014	-	-	-	-	1,014	-	1,177	-	-	-	-	1,177
Training equipment	no	1	-	-	-	-	-	1	713	-	-	-	-	-	713	799	-	-	-	-	-	799
Subtotal Logistical support																						
Subtotal I.C. Implementation support																						
Subtotal COMPONENT I: Institutional Strengthening																						
B. COMPONENT III: Horizontal Expansion																						
1. III.A. Upgrading of data collection network																						
a. River gauging sites																						
Upgradation of existing RG station (SG)	no	-	25	33	-	-	-	58	-	25,585	3,378	-	-	-	5,936	-	3,016	4,168	-	-	-	7,185
New RG stations (shaft encoder or equivalent)	no	-	15	15	-	-	-	30	-	3,071	3,071	-	-	-	6,141	-	3,619	3,790	-	-	-	7,409
New RG stations (cable/bubbler or equivalent)	no	-	1	2	-	-	-	3	-	205	409	-	-	-	614	-	241	505	-	-	-	747
Civil works for boat sites	no	-	20	-	-	-	-	20	-	6,755	-	-	-	-	6,755	-	7,963	-	-	-	-	7,963
Site stores	no	-	20	20	-	-	-	40	-	3,071	3,071	-	-	-	6,141	-	3,619	3,790	-	-	-	7,409
AWLR (shaft encoder with data retriever or eqvt)	no	30	-	-	-	-	-	30	4,285	-	-	-	-	-	4,285	4,813	-	-	-	-	-	4,813
AWLR (bubbler sensor with logger)	no	3	-	-	-	-	-	3	490	-	-	-	-	-	490	550	-	-	-	-	-	550
Current meter (propeller)	no	30	-	-	-	-	-	30	2,143	-	-	-	-	-	2,143	2,407	-	-	-	-	-	2,407
Current meter (standard)	no	20	-	-	-	-	-	20	510	-	-	-	-	-	510	573	-	-	-	-	-	573
Current meter (pigmy)	no	15	-	-	-	-	-	15	77	-	-	-	-	-	77	86	-	-	-	-	-	86
Frame winch	no	-	38	-	-	-	-	38	-	1,551	-	-	-	-	1,551	-	1,819	-	-	-	-	1,819
Boat complete with cableway	no	-	20	-	-	-	-	20	-	6,428	-	-	-	-	6,428	-	7,539	-	-	-	-	7,539
Echo sounder	no	12	-	-	-	-	-	12	367	-	-	-	-	-	367	413	-	-	-	-	-	413
Subtotal River gauging sites																						

b. GW Observation wells																												
Medium (cw)	no	100	200	200	200	-	-	700	6,141	12,282	12,282	12,282	-	-	42,987	6,914	14,477	15,158	15,870	-	-	52,420						
Deep (cw)	no	5	15	15	15	-	-	50	537	1,612	1,612	1,612	-	-	5,373	605	1,900	1,989	2,083	-	-	6,578						
Protective cover for DWLRs (cw)	no	-	10	20	20	-	-	50	-	82	164	164	-	-	409	-	97	202	212	-	-	510						
Digital water level recorders	no	-	20	40	40	-	-	100	-	1,011	2,021	2,021	-	-	5,053	-	1,167	2,438	2,558	-	-	6,163						
GW monitoring kits	no	-	15	-	-	-	-	15	-	1,137	-	-	-	-	1,137	-	1,313	-	-	-	-	1,313						
Submersible pump	no	2	-	-	-	-	-	2	404	-	-	-	-	-	404	451	-	-	-	-	-	451						
Subtotal GW Observation wells															55,364	7,970	18,954	19,788	20,723	-	-	67,435						
c. Hydrometeorological sites																												
Standard RG (cw)	no	-	50	40	-	-	-	90	-	563	450	-	-	-	1,013	-	664	556	-	-	-	1,219						
Automatic RG (cw)	no	-	10	-	-	-	-	10	-	113	-	-	-	-	113	-	133	-	-	-	-	133						
SRG equipment	no	100	-	-	-	-	-	100	255	-	-	-	-	-	255	286	-	-	-	-	-	286						
ARG all types equipment	no	10	-	-	-	-	-	10	102	-	-	-	-	-	102	115	-	-	-	-	-	115						
Subtotal Hydrometeorological sites															1,483	401	796	556	-	-	1,753							
d. Water quality laboratories																												
CW Level 2 lab	no	-	2	-	-	-	-	2	-	3,275	-	-	-	-	3,275	-	3,861	-	-	-	-	3,861						
CW Level 2+ lab	no	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
CW Level 3 lab	no	-	1	-	-	-	-	1	-	4,094	-	-	-	-	4,094	-	4,826	-	-	-	-	4,826						
Sediment equipment	no	2	-	-	-	-	-	2	152	-	-	-	-	-	152	170	-	-	-	-	-	170						
Water/sediment sampling package (local)	no	6	-	-	-	-	-	6	122	-	-	-	-	-	122	136	-	-	-	-	-	136						
Water quality kits	no	-	8	10	-	-	-	18	-	406	507	-	-	-	912	-	471	615	-	-	-	1,086						
Level 2 lab equipment	set	-	2	-	-	-	-	2	-	3,650	-	-	-	-	3,650	-	4,237	-	-	-	-	4,237						
Level 2+ lab equipment	set	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Level 3 lab equipment	set	-	1	-	-	-	-	1	-	7,502	-	-	-	-	7,502	-	8,709	-	-	-	-	8,709						
Mobile Lab	no	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-						
Subtotal Water quality laboratories															19,708	306	22,103	615	-	-	23,024							
Subtotal III.A. Upgrading of data collection network																												
2. III.B. Upgrading of data processing and management system																												
a. Data centre buildings																												
Sub-divisional Office Data centre	no	-	5	5	-	-	-	10	-	5,118	5,118	-	-	-	10,235	-	6,032	6,316	-	-	-	12,348						
Divisional Office Data centre	no	-	3	4	-	-	-	7	-	7,676	10,235	-	-	-	17,911	-	9,048	12,632	-	-	-	21,680						
State Data centre/Directorate	no	-	0.5	0.5	-	-	-	1	-	10,235	10,235	-	-	-	20,470	-	12,065	12,632	-	-	-	24,696						
Subtotal Data centre buildings															48,616	-	27,145	31,580	-	-	58,725							
b. Data management computer package SW+GW /g																												
Sub-divisional package	set	-	5	5	-	-	-	10	-	2,535	2,535	-	-	-	5,069	-	2,942	3,075	-	-	-	6,017						
Divisional package	set	-	2	2	-	-	-	4	-	4,643	4,643	-	-	-	9,286	-	5,390	5,634	-	-	-	11,024						
State data processing package	set	-	1	-	-	-	-	1	-	2,332	-	-	-	-	2,332	-	2,707	-	-	-	-	2,707						
State data storage package	set	-	1	-	-	-	-	1	-	3,498	-	-	-	-	3,498	-	4,060	-	-	-	-	4,060						
GIS software	set	-	-	0.7	0.1	0.1	0.1	1	-	1,065	152	152	152	-	1,521	-	1,292	193	203	212	-	1,900						
GIS data set	set	-	-	-	0.5	0.5	-	1	-	-	-	5,862	5,862	-	11,724	-	-	-	7,526	7,882	-	15,408						
Subtotal Data management computer package SW+GW															33,430	-	15,099	10,001	7,720	8,084	212	41,117						
c. Communication facilities																												
Communication facilities	ls	0.1	0.4	0.3	0.2	-	-	1	611	2,443	1,832	1,221	-	-	6,107	685	2,854	2,239	1,564	-	-	7,342						
NICNET linkage within zone	ls	-	1	2	2	-	-	5	-	254	509	509	-	-	1,272	-	297	622	652	-	-	1,571						
Subtotal Communication facilities															611	2,697	2,341	1,730	-	-	7,379	685	3,151	2,861	2,216	-	-	8,913
Subtotal III.B. Upgrading of data processing and management system																												
3. III.C. Purpose-driven studies																												
Consultancy support	ls	-	-	0.25	0.375	0.25	0.125	1	-	-	1,139	1,708	1,139	569	4,555	-	-	1,277	2,010	1,404	735	5,426						
Procurement of software and data acquisition	ls	-	-	0.25	0.375	0.25	0.125	1	-	-	760	1,141	760	380	3,042	-	-	923	1,451	1,013	530	3,917						
Civil works	ls	-	-	0.125	0.25	0.5	0.125	1	-	-	576	1,151	2,303	576	4,606	-	-	711	1,488	3,116	816	6,129						
Equipment	ls	-	-	0.125	0.25	0.5	0.125	1	-	-	650	1,301	2,602	650	5,203	-	-	798	1,672	3,503	917	6,890						
Training workshop and courses	ls	-	-	0.25	0.375	0.25	0.125	1	-	-	767	1,151	767	384	3,068	-	-	903	1,418	990	518	3,828						
Subtotal III.C. Purpose-driven studies															20,474	-	-	4,611	8,039	10,025	3,515	26,190						

4. III.D. Training																						
Field observers	Trainee	33	33	34	-	-	-	100	101	101	104	-	-	-	307	109	114	123	-	-	-	345
Training of trainers	Trainee	6	7	7	-	-	-	20	74	86	86	-	-	-	245	79	97	101	-	-	-	277
Data entry staff	Trainee	33	33	34	-	-	-	100	405	405	417	-	-	-	1,227	435	455	491	-	-	-	1,381
Supervisors	Trainee	-	-	-	6	7	7	20	-	-	-	92	107	107	307	-	-	-	113	139	145	397
Data base managers	Trainee	-	-	-	3	3	4	10	-	-	-	77	77	102	256	-	-	-	95	99	138	332
GIS software application	Trainee	1	1	1	1	1	1	6	307	307	307	307	307	307	1,841	330	345	361	378	396	414	2,224
Subtotal III.D. Training															4,183	952	1,010	1,076	586	633	698	4,956
Subtotal COMPONENT III: Horizontal Expansion															232,075	19,155	116,076	83,340	39,283	18,743	4,425	281,021
A. COMPONENT I : Institutional Strengthening																						
1. I.B. Awareness, Dissemination and Knowledge Sharing																						
a. Awareness raising and data dissemination																						
Incremental staff costs	pers/year	3	3	3	3	3	3	18	737	737	737	737	737	737	4,422	792	829	868	909	952	996	5,346
2. I.C. Implementation support																						
a. Incremental recurrent costs for project management																						
Incremental office O&M costs	ls/year	1	1	1	1	1	1	6	491	491	491	491	491	491	2,943	527	551	576	603	632	662	3,550
Incremental building maintenance costs /h	ls/year	-	-	-	-	-	-	-	-	-	72	143	143	143	501	-	-	84	176	184	193	637
Incremental vehicles O&M /i	ls/year	-	-	-	-	-	-	-	818	2,698	2,698	2,698	2,698	2,698	14,306	878	3,028	3,169	3,319	3,475	3,639	17,508
Subtotal Incremental recurrent costs for project management															22,172	2,196	4,408	4,698	5,007	5,243	5,489	27,041
Subtotal COMPONENT I : Institutional Strengthening																						
B. COMPONENT III: Horizontal Expansion																						
1. III.A. Upgrading of data collection network																						
a. Incremental recurrent costs for network O&M																						
Staff costs for network O&M	pers/year	1	1	1	1	1	1	6	4,503	4,503	4,503	4,503	4,503	4,503	27,020	4,840	5,067	5,305	5,555	5,816	6,089	32,672
Incremental O&M of river gauging sites /j	ls/year	-	-	-	-	-	-	-	-	552	2,192	2,857	2,857	2,857	11,315	-	619	2,575	3,515	3,681	3,854	14,244
Incremental O&M costs of GW observation sites /k	ls/year	-	-	-	-	-	-	-	-	496	1,445	2,428	3,160	3,160	10,688	-	556	1,697	2,987	4,070	4,261	13,573
Incremental O&M costs of hydrometeorological sites /l	ls/year	-	-	-	-	-	-	-	-	14	41	59	59	59	233	-	16	48	73	76	80	293
Water quality labs incremental O&M costs	ls	-	-	-	-	-	-	-	-	920	920	920	920	920	4,599	-	1,032	1,080	1,131	1,185	1,240	5,669
Subtotal Incremental recurrent costs for network O&M															53,855	4,840	7,291	10,706	13,261	14,828	15,524	66,451
2. III.B. Upgrading of data processing and management system																						
a. Incremental O&M costs for data processing&management																						
Incremental staff for data processing and management	pers/year	1	1	1	1	1	1	6	5,208	5,208	5,208	5,208	5,208	5,208	31,245	5,596	5,859	6,135	6,423	6,725	7,041	37,780
Incremental O&M costs of buildings /m	ls	-	-	-	-	-	-	-	-	-	460	971	971	971	3,372	-	-	540	1,194	1,251	1,309	4,294
Incremental O&M costs of IT /n	ls	-	-	-	-	-	-	-	-	-	723	2,035	2,035	2,035	6,827	-	-	850	2,503	2,621	2,744	8,718
Incremental O&M costs of communication	ls/year	2	2	2	2	2	2	12	409	409	409	409	409	409	2,453	439	459	480	503	527	551	2,958
Incremental consumable and office expenses	ls/year	1	1	1	1	1	1	6	511	511	511	511	511	511	3,066	548	573	600	629	658	689	3,698
Subtotal Incremental O&M costs for data processing&management															46,963	6,584	6,892	8,605	11,252	11,782	12,335	57,449
3. III.C. Purpose-driven studies																						
Incremental O&M costs	ls	-	-	0.125	0.25	0.375	0.25	1	-	-	383	766	1,150	766	3,066	-	-	450	943	1,481	1,034	3,908
Incremental staff costs	ls	-	-	0.125	0.25	0.375	0.25	1	-	-	883	1,766	2,648	1,766	7,062	-	-	1,040	2,178	3,420	2,387	9,025
Subtotal III.C. Purpose-driven studies															10,128	-	1,490	3,121	4,901	3,421	12,933	
Subtotal COMPONENT III: Horizontal Expansion															133,118	13,619	18,590	25,500	32,642	36,754	36,770	163,874
Grand Total for HP-II															409,518	39,283	156,169	117,801	77,611	60,680	46,285	497,828